Burial Practices of the Harappans: Sanauli Excavation – A Case Study

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CERTIFICATE

This is to certify that the thesis titled "**BURIAL PRACTICES OF THE HARAPPANS: SANAULI EXCAVATION – A CASE STUDY**" is a piece of original research work carried out by **V.N. Prabhakar** for the partial fulfillment of the degree of Doctor of Philosophy in Ancient Indian History, Culture & Archaeology under my supervision. This work has not been submitted in part or full for the award of any other degree or diploma in this or any other university.

Dated : **(Dr. Sat Dev)**

DECLARATION

I, V.N. Prabhakar, hereby declare that the work being presented in the thesis titled "**BURIAL PRACTICES OF THE HARAPPANS: SANAULI EXCAVATION – A CASE STUDY**" is in partial fulfillment for the degree of Doctor of Philosophy in Ancient Indian History, Culture & Archaeology.

This work has been done in regular consultation with my respected guide Dr. Sat Dev. It is my original work.

I have not submitted the matter embodied in this thesis for the award of any other degree or diploma.

Date: **(V.N. Prabhakar)**

TABLE OF CONTENTS

Chapter 3 – Harappan Civilization and Burial Repertoire

Chapter 4 – Survey of Burial Remains from Harappan Sites

Chapter 5 – Burial Practices as Revealed from Sanauli Excavations

Chapter 6 – References from Historic Literature on Burial Practices

Chapter 7 – Discussion and Summary

List of Figures

Chapter 1 – Introduction

Chapter 2 – Survey of Disposal of Dead since Prehistoric Times from Archaeological Record

Chapter 3 – Harappan Civilization and Burial Repertoire

Chapter 4 – Survey of Burial Remains from Harappan Sites

Chapter 5 – Burial Practices as Revealed from Sanauli Excavations

Chapter 6 – References from Historical Literature on Burial Practices

Chapter 7 – Discussion and Summary

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Chapter - 1

Introduction

1.1 Introduction and Aims

The birth and death life cycle of humans was an important aspect since prehistoric times. This cycle of birth and death brought joy and sorrow respectively and the humans treated the death with much sorrow and grief. Since the earliest times, the disposal of the dead has been given much importance by the humans. Often, the dead ones were accompanied with food and personal belongings indicating a belief of life after death. The humans attempted to relive the memory of the departed souls and tried to erect a tomb or a memorial stone to remember their close relatives, kith and kin, etc. In the global context, the earliest known burials may be attributed to the Middle Palaeolithic times or Mousterian levels. The presence of burials from the prehistoric context has been found so far from Tabun Cave, Israel, (*circa.* 180 000 years ago); La Chapelleaux-Saints Cave, Corre`ze, France; La Ferrassie, Dordogne, France (brought to light remains of eight bodies placed in man-made graves, along with burial goods, protective flagstones and earth mounds); Teshik-Tash Cave, Uzbekistan, (remains of a boy's body circled with ibex horns).[1]

The presence of eight adults and two infant skeletal remains from the Middle Palaeolithic context from Shanidar Cave, located in the Zagros Mountains of northeastern Iraq is one of the prominent Neanderthal sites in West Asia.[2] The excavations carried out between 1957-1961 have yielded remains of nine Neanderthal skeletons, of which two exhibit clear evidence of performance of burial rituals.[3] Two of the nine individuals, from Shanidar IV presented very good evidence of Neanderthal burials dated to 65,000 – 35,000 years ago. A small pile of stones marks one of the graves and some worked chert points. The second one is of an adult burial, lying on his left side in a partial fetal position. Further, the remains of ancient flower pollens from the soil clinging to the skeletal remains of Shanidar IV presents a very good evidence of attachment and association with the deceased person and as a respect or esteem, the flowers were placed along with the burial. The presence of burials of the Cro-Magnons of the *Homo Sapiens* is another

evidence of such rituals in the prehistoric age.[4] The Upper Palaeolithic period saw the elaboration in the rituals and often the dead body was placed with richer grave goods. The subsequent periods saw elaboration in the burial rituals and exuberance in the execution of burial tombs. This culminated in the elaborate burials noticed in the Egyptian and Mesopotamian civilizations.



Fig. 1.1: A scene of the Neanderthals performing the burial ritual of placing flowers, Shandiar Cave, Iraq (after *http://www.smithsonianmag.com/arts-culture/The-Skeletons-of-Shanidar-Cave.html*)

In the context of Indian sub-continent, the earliest evidence for disposal of dead is from Mehrgarh in Pakistan and Mahadaha in India. The earliest burial at Mehrgarh belongs to Period I (c. 7000 – 5500 B.C.) of the Neolithic cultural phase. This burial also contained a polished stone axe, which is the earliest to come from a stratified context.   These burials indicate the application of red ochre over the body, which is a clear indication of pre-burial ritual. These burials also contained ornaments and grave goods. The detailed account of burials of various cultural levels from Mehrgarh is given in Chapter 2. The Mesolithic burials discovered from Mahadaha in Uttar Pradesh are also among the earliest and pre-dating the Harappan burials. The area represented by the Harappan culture was not in a vacuum during the period preceding of its culmination as indicated by the presence of a large number of sites pre-dating the Mature Harappan phase in this region. The presence of burials is also noticed from some of these sites, which will help in understanding the modes of burials and practices pre-dating the mature Harappans. A large number of Harappan sites have been excavated so far in the Indian sub-continent and some these have revealed the presence of cemeteries, either to the north, west or south-west of the settlements. Some of the prominent sites that have yielded the presence of burials are Harappa, Mohenjo-daro, Kalibangan, Dholavira, Lothal, Rakhigarhi,

Rupnagar (Ropar), Sanauli, etc. The study of these cemeteries, both from the Pre / Early Harappan, Mature Harappan and Late Harappan context will help in understanding the nature of burial practices over a period of time. The orientation of the burials from most of the sites is invariably north – south, and consisting of many sub-varieties in the of inclination to the west / east of true north. While the burials at Harappa belong to both mature and Post-urban Harappan periods, Sanauli burials may be placed tentatively to Post-urban Harappan, while the remaining sites can be placed in the Harappan period.

1.2 Aims of the present study

The village of Sanauli (29^0 8' 28" N; 77^0 13'01" E) is located on the Baraut – Chhaprauli road, in tehsil Baraut, District Baghpat of Uttar Pradesh, in the upper *doab* of Yamuna-Hindon rivers. Presently, the River Yamuna flows approximately at a distance of 8 km to the west of the village. The Late Harappan habitation at the site, evidencing pottery assemblages and associated skeletons were revealed in the agricultural fields while the leveling operation was attempted by the villager, Yogeshwar Dutt Sharma. An area of about 35 m (north-south) X 20 m (east-west), about 219 m above MSL, was subject to unplanned digging by the villager as stated above. The digging in the area was, however, deepened up to a depth of nearly 1.5 m to takeout the alluvial earth. This has extensively damaged the human remains and only fragmentary bones could be collected. The excavation at Sanauli was subsequently taken up which has brought to light 116 burial remains with a majority of them containing human skeletons, sometimes associated with animal remains. The principal pottery shapes found in the burials include (i) dish-on-stand, (ii) elliptical vases with or without footed base, (iii) pot-stand, (iv) jars (v) small vases commonly called *lota vases,* (vi) deep and shallow bowls, (vii) bowl-cum-lid, (viii) miniature vessels, besides others. In the present collection is a decorative grey dish-on-stand par excellence.

The present study aims in studying the burials in detail, in terms of orientation, burial contents, placement of the human skeleton, burial pottery and other burial remains, copper antiquities, jewellery, etc. The study also aims at identifying the evolutionary stages, if any, in the disposal of dead of Sanaulians, and the probable levels of Mature Harappan periods, if any. Further, such a study is not

isolated in terms of Sanauli alone and aims at making a comparative analysis of burials from other Harappan sites like Harappa, Dholavira, Kalibangan, etc. The study also aims in recording the evidences recovered from excavated sites in order to understand the evidence from Sanauli in a spatio-temporal basis and to understand any evolutionary patterns in the origin and culmination of any particular interment practice. This would be followed by incorporating the anthropological analysis carried out by the experts. Further, avenues would be explored to include any scientific analysis of the artefacts from the burials that may lead to better understanding the burial remains. In this regard, the bio-archaeological investigations carried out in collaboration with the Department of Anthropology, University of Florida, U.S.A. were extremely useful through the stable isotope analysis of tooth remains from Sanauli. A comparative analysis of the literary references on different modes of the disposal of dead with the Sanauli evidence would also be made to understand various rituals that could have been performed before the humans were interred in the burials. Sanauli is also very much prominent in the sense that it is the only site where the antenna sword belonging to the repertoire of Copper Hoard Culture is found associated in two or three burials. The typology of the antenna sword from the Sanauli burials as wells as those of copper hoard specimen will also be compared in order to correlate the findings from excavation and exploration in a better manner.

1.3 Methodology of the present study

The methodology of the present study involves in understanding the burial practices in the Indian sub-continent in a spatio-temporal basis right from the evidences available from the prehistoric times onwards. The Chapter 2 is fully dedicated to collate as far as possible the evidences available on burial practices from various prehistoric and protohistoric contexts from the excavations carried out by various agencies so far in the sub-continent. Even though some of these sites may be contemporary with the Harappan Culture in spite of their cultural affiliations, it would enable to understand the nature of the burials in a culture specific context. Thus, an overall estimate of the burial practices during the prehistoric and protohistoric times other than the Harappan Culture and its affiliations will be made to place the evidences from Harappan Culture in a better perspective. The understanding of the Harappan Culture / Civilization in the geographical and

environmental scenario, the various stages of development in the Harappan Culture, its evolution and distribution pattern and extent, would follow this. It is understood through a series of archaeological investigations involving exploration and excavations spanning over two centuries that the culmination of Harappan culture was through a process of cultural interaction and integration that preceded the Mature Harappans. The Chapter 3 is concentrated on the definition, identification and various other factors of the Harappan Culture as a whole and its place in the global context in comparison to other civilizations. Through the Chapter 4, a look into the burial practices of the periods preceding and succeeding the Harappans will be made in order to get an insight on the various traditions and practices. Apart from the various cultural repertoire of the Harappan Culture, the burial practices of this culture would be discussed to understand the various disposal modes adopted by the Harappans in various cultural and eco-zones. A look into the Late Harappan burial customs from the site of Harappa and other sites might be of good help as the majority of the graves from Sanauli fall in the Late Harappan phase.

The understanding of the broad burial practices of the various cultures, both preceding and succeeding the Harappans will be made along with the descriptions of each site in terms of evidences yielded from the cemeteries. This will also give an idea of the regional variations, if any, of the burial practices in the ancient past. Further, an understanding of the intra-site variations in burial practices may also be had.

With this background in mind, in the Chapter 5, the burials excavated from Sanauli will be discussed, as a whole, and on an individual burial basis. This will lead to the understanding the overall developmental stages and evolution in burial practices from within the site itself. This will also help in the identification of various cultural phases from Sanauli, which will be basically done on the basis of analysis of pottery remains, which clearly exhibit a variety of forms and shapes as well as decorative patterns, albeit scarcely. The study will be supported by well laid out illustrations, photographs, maps and other scientific analysis, the latter as per the availability. The Chapter 6 aims at looking into various literary sources on the disposal of dead, which will enable to understand the psyche of the kith and kin of the deceased while causing the burials for their beloved ones into the burials. Further, the correlation of ancient literature with those of archaeological evidences

from different sites is an approach made by several scholars in the past, right from the description of Cemetery H burials from Harappa by M.S. Vats. Thus, an attempt will be made to first understand the overall picture of burial practices during the third millennium BCE and then try to understand the context of Sanauli and its importance in the Harappan cultural assemblage.

1.4 Definition and Nature of 'Burials'

The definition of a 'burial' as per the Merriam-Webster's Collegiate Dictionary is, "to bury", "grave, tomb", "the act or process of burying". The Merriam-Webster's Collegiate Thesaurus gives further meanings to a burial as, "pit, sepulcher, tomb", "the act or ceremony of burying" and gives its synonyms as, "entombment, interment, inhumation, sepulture", and its related words as, "burying, funeral, deposition". While a burial ground is defined in the same thesaurus as, "burying ground, graveyard, necropolis".

Hence, burial practice may be defined as, "the beliefs and customs associated with the burial of the dead, that were practiced by the cultural inhabitants". These 'beliefs, customs and practices', were unique and vary from culture to culture, as it is gleaned from the archaeological sources. The past cultural inhabitants not only buried their dead, they also practiced several other modes of disposal of the dead. Two broader modes of disposal noticed from archaeological records were burial and cremation. Burying the dead, in turn had various sub-varieties depending upon the details of the burial contents, position and stature of the skeletal remains, etc.

A sub-variety of burying the dead is also observed from archaeological evidence. It is a **'symbolic burial'**. The symbolic burials often contain no remains of human remains, and a ritual only is performed with all the paraphernalia of a usual inhumation burial. The reason for such a burial may be varied. Often the body remains of a person are not found and hence a symbolic burial commemorating that person is performed. Otherwise, if the culture is in a warring society, and if the person concerned dies in a war or conflict, whatever remains of the person could be gleaned are collected and assembled together and a burial ritual is performed.

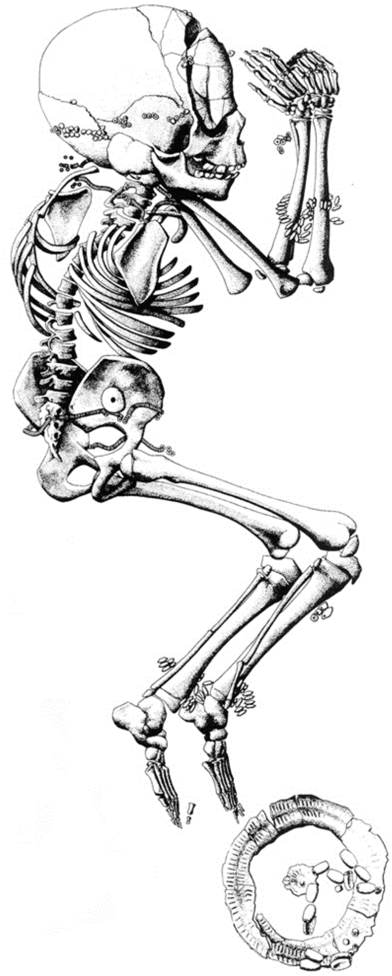


Fig. 1.2: An example of flexed burial from Mehrgarh, MR 3, Period IB

Cremation of dead was also a major kind of disposal of dead during ancient times. Although clear cut evidences are rare, enough evidences from literary sources are found for cremating the dead ones. In certain cases, the ashes and charred remains after the cremation of dead were also placed in urns and the usual burial rituals were performed. **Cremation** is a common practice of disposal of the dead among many sects of the society during the modern times. The cremation of the deceased person also involved in a series of rituals which might have evolved through the passage of time and crystallised after trial and error. The basic function of performing such a ritual may be deduced as highly philosophical and metaphysical. It is the yearning of the close kith and kin of the deceased person to ensure a life of peace after his death in the nether world. In other words, it is a belief of 'life after death'. It is also the differentiation of 'body' and 'soul', and the departure of the 'soul' from the earthly 'body'. The belief conjures a life for this

soul after it leaves the earthly body. The burial rituals are also an outcome of resting this soul of the departed person in peace, and also due to the belief, that if the soul is not rested in peace, it might also torment or wander in a restless state of motion. The customary burial practices ensures a set of rituals performed at the time of internment of the body with a belief that the soul rests in peace and his / her afterlife is secured. It is with this belief system that several ancient civilizations devised various sets of burial practices. It also depended upon the social status of the person which was proportionately reflected in the nature of the burial goods. A classic example in this case is that of the Egyptian tombs of the pharaohs who amassed extraordinary quantity of riches for their afterlife, for e.g., noticed in the tomb of the Tutankhamen. The internment of a body in the burial has also its significance. Based upon the position of the body, various definitions are given. Thus, in an **extended burial**, the body is placed lying flat with arms and legs straight, or with the arms folded on the chest. The extended burials may be **supine** (lying on the back) or **prone** (lying on the front). The other modes are **flexed**, in which the legs of the body are bend, and **crouched**, where the legs of a body is folded up to the chest. The flexed posture may also be supine, or turned towards one side, either to the right or left of the dead body.

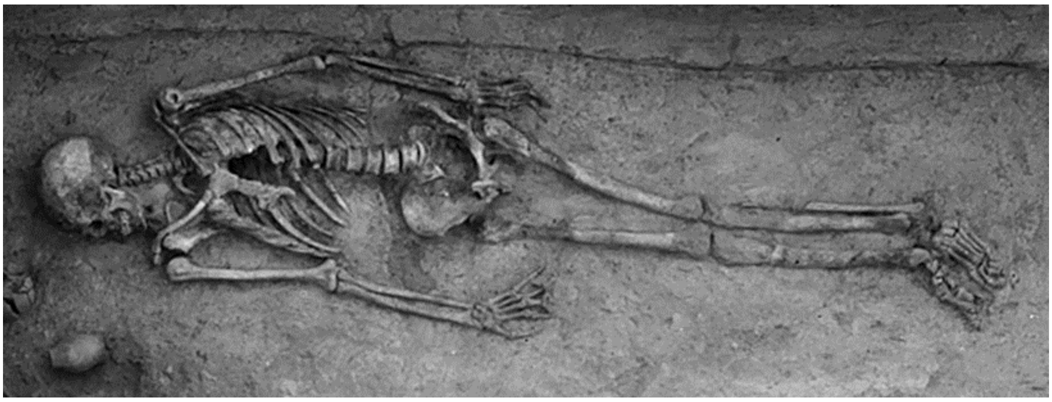


Fig. 1.3: An example of extended burial in supine position from Kalibangan

In the burial record of different cultures and civilizations, several such postures of internment of the human bodies could be noticed. In the following chapters, several such examples will be discussed as per the context and necessity, in order to have a better understanding of the burial practices through time and space. The archaeological evidence also indicates the presence of single, double, or several dead bodies in a single grave pit. The evidence from Lothal of a burial consisting of

two skeletons has been interpreted as a ‘Sati’ type burial.[5] Multiple burials are also found as gleaned from the Lothal evidence.[6] Examples of human burials in association with animal remains are also found from the archaeological records, which indicate specialised ritualistic practices among the ancient cultures. From the preceding pages, an attempt is made to present the aim and methodology of the present study along with the descriptions and definitions of different types of burials. The concept and methods will be enlarged and elaborated in the succeeding chapters.

1.5 References

1 Retrieved from http://www.caves.org/grotto/esso/RESOURCES/burials.pdf, retrieved on 27.11.2012; 10.50 AM.

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4 Retrieved from http://images.classwell.com/mcd_xhtml_ebooks/2005_world_history/pdf/WHS05_01_09_PS.pdf, retrieved on 27.11.2012; 11.15 AM.

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Chapter - 2

Survey of Disposal of Dead since Prehistoric Times from Archaeological Record

2.1 The idea of disposal of dead in the past starting from the prehistoric periods to the beginning of settled life

In the Indian context, the evidence for the disposal of dead in a definite burial mode is noticed from the prehistoric period onwards, most particularly from the Mesolithic period onwards. Even though the number of Mesolithic sites so far excavated are very few in number, the evidence available can be pieced together to have an understanding of the beliefs and customs of the ancient population towards afterlife and disposal of dead. These systems of internment of the dead ones also help us to understand the multifarious beliefs and customs existed among the various prehistoric communities. The Mesolithic sites that have yielded evidence of burials are widely separated from each other, the sites of the middle Ganga plain is particularly important as they have revealed a large number of burials and a quite deal of multi-disciplinary studies have been conducted on these burials. A brief account of the evidences obtained from various prehistoric sites (*see **Fig. 2.2** for important sites discussed*) is presented below:

2.1.1 Bhimbetka

Bhimbetka (*22^0 56’ 15” N; 77^0 36’ 41” E*), the famous site yielding hundreds of rock-shelters with rock paintings dating from prehistoric paintings has also yielded evidences of disposal of the dead. Several rock-shelters at Bhimbetka were excavated by various agencies like the Deccan College and the ASI. The excavation in various rock shelters brought to light a continuous occupation starting from late Acheulian to Mesolithic to even historical levels. The excavation carried out by Mishra at Shelter II B – 33 brought to light five burial remains belonging to the Mesolithic and Chalcolithic phases;[1] at Cave III F-13 two human burials of the Mesolithic phase were excavated.[2] One of the burials at Cave III F-13 was found interred in a southwest to northeast orientation, with the head placed at the southwest and face turned towards the south.

The body was originally placed in a flexed position with the legs drawn upon towards the pelvis and the left arm resting on the abdomen. The skeleton was poorly preserved and the skull was badly crushed due to the weight of the overlying deposits. The remains were identified that of a young man of around twenty years.[3] The other burial, which was found in layer 3, contained only fragments of a human skull.[4] The excavation at Shelter II B – 33 yielded five burials in total, two burials (***Burials 1 & 2***) from the layer 2 ascribable to the Chalcolithic phase and three burials (***Burials 3, 4 & 5***) were from layer 3 of the Mesolithic phase. Burial 1 (**Fig. 2.1**) had only the lower limb bones resting on a flat slab, and was highly fragmentary in nature and poorly preserved.[5]

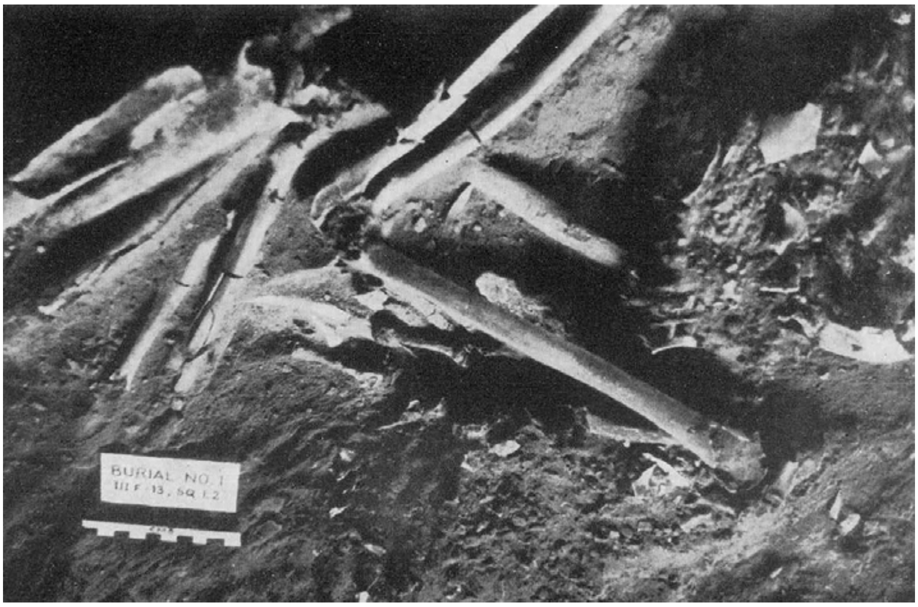


Fig. 2.1: Burial of the Mesolithic Period, Bhimbetka, Madhya Pradesh

While the body was laid out in an east-west orientation, it was in a crouched position. ***Burial 2*** is quite interesting and important in the sense that it contained stone rubbers, hammers and a few animal bones neatly arranged along the skeletal remains in an extended condition and laid in northeast-southwest orientation.[6] The burial was placed over a bedding of stone and also covered with stones partially. However, many of the bones of the upper body was found missing. ***Burials 3 and 4***, were found side by side and laid in east-west orientation, placed over a bedding of stone, and the arms laid parallel to the body, while the legs folded.[7] The ***Burial 4*** contained two pieces of charred antler, one with cut marks, and rubber stones as grave goods. ***Burial 5*** is that of a juvenile with only fragmentary bones and partial in nature contained only jaw, fragment of skull and other bones.[8]

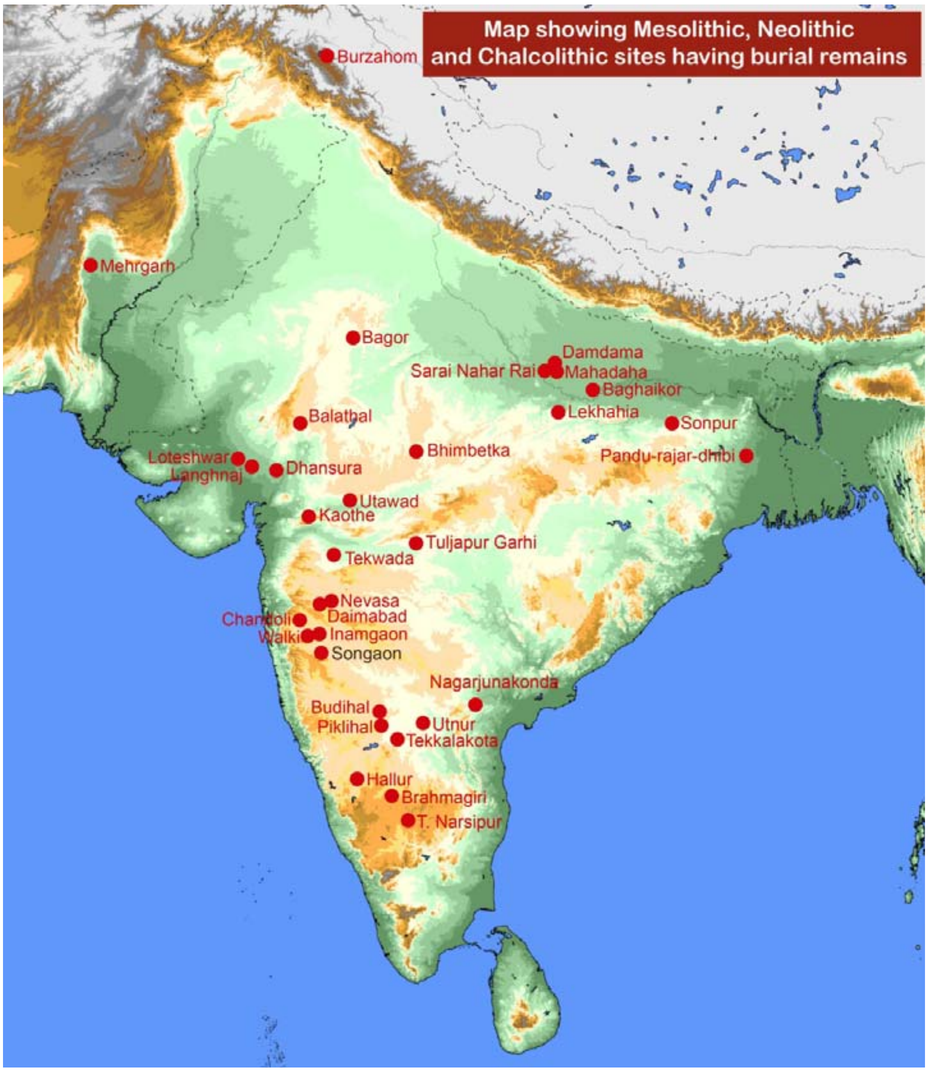


Fig. 2.2: Map showing important Mesolithic, Neolithic and Chalcolithic sites having burial remains

2.1.2 Damdama

Damdama (*26^0 10' N; 82^0 10' E*) also known as Warikalan, is located in district Pratapgarh on the banks of an oxbow lake, formed by two tributaries of Tambura Nala, which is in turn a tributary of River Sai.[9] Damdama is a habitation site and covers an area of 8750 m^2 preserving a 1.5 m cultural deposit.[10] The site was brought to light when the local villagers discovered human skeletons while digging an irrigation drain.[11] A total of ten layers were identified here at Damdama, of which the uppermost is a post-Mesolithic deposit. The excavation at this site was carried out by the University of Allahabad during 1982 – 1987 spanning over five field seasons, which brought to light cultural materials like microliths, bone objects, querns, mullers, hammer stones, burnt clay lumps, charred grains, faunal remains and a good representation of burial remains.[12] The excavations brought to light a

total of 41 burials from the western and central part of the site, located within the habitation area and generally near the hearths.[13] The evidence indicates that most of the burials were interred as single burials, albeit there are instances of five double burials and one triple burial, the latter containing two males and one female.[14]

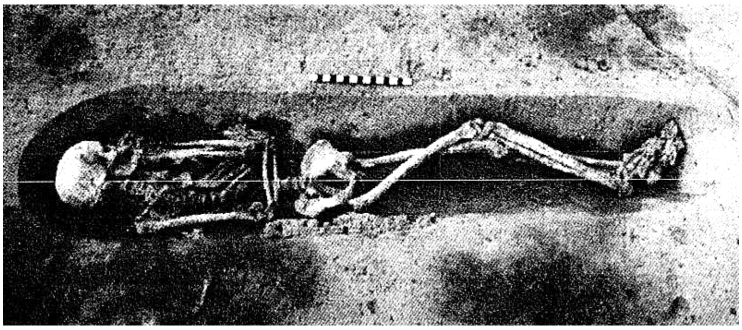


Fig. 2.3: Flexed supine burial, Damdama

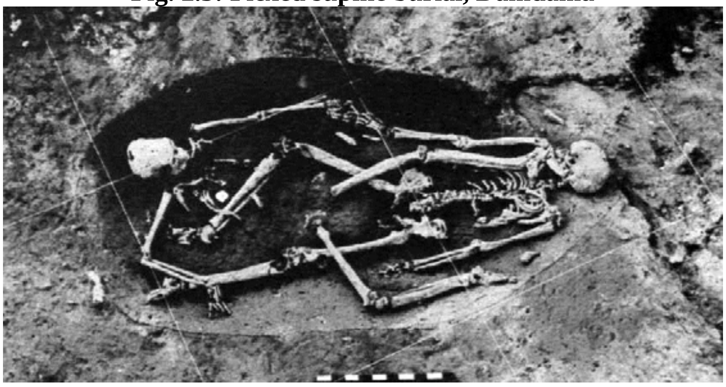


Fig. 2.4: Double burial, Damdama

The orientation of the burials was in a west – east direction (or in east – west in a few cases), with the skull placed towards the west. The double burials showed a different orientation of either south – north or north – south.[15] The graves were generally in shallow or oblong pits. In a majority of the cases, the skeletons were placed in a flexed supine position, while only two cases showed the internment in flexed prone position. One burial (Grave VII) had burial furniture like two arrowheads and one pendant made of bone, which were kept near the left tibia, which the excavators consider as an important member of the community.[16] The skeletons were found in a highly calcified condition and in an advanced stage of fossilization and acquired a chocolate colour.[17] The radiocarbon dates for Damdama indicate the habitation between 9th and 6th millennium BCE (8868 ± 65; 5550 ± 60; 5250 ± 70; 5430 ± 60 are the four published radiocarbon dates from Damdama). The skeletal morphology from this site indicates that the individuals *"….were tall, robust people with well-developed musculature on the appendicular skeleton."*[18]

The skeletal morphology of the individuals from Damdama is similar to the other Mesolithic sites like Sarai Nahar Rai and Mahadaha.[19] The dental pathological profile from this site showed that, *"….females had high prevalence of caries, abscesses, AMTL and pulp exposures, whereas males had higher prevalence of calculus, alveolar resorption, and enamel hypoplasia."*[20] These dental evidences have been interpreted as an indication of hunter-gatherer subsistence of the population.[21] The dietary reconstruction of the population based on the carbon and nitrogen isotopes in *"bio-apatite"* samples from this site indicated that the population was eating more C4 foods (grassy plants).[22]

2.1.3 Mahadaha

Mahadaha (*25^0 59' N; 82^0 11' E*) is situated on the banks of an oxbow lake of the Gangetic system, and is approximately 20 km south of Damdama and 40 km northeast of Sarai Nahar Rai, both Mesolithic sites and have yielded good evidence of burials. The site is located at a distance of 89 km north-northwest of Allahabad.



Fig. 2.5: View of the cemetery, Mahadaha

The site was discovered accidentally when a local canal construction destroyed many of the burials and subsequently excavated by the University of Allahabad. The cultural assemblage consisted of 35 pit hearths, microliths, burnt clay lumps, rubbed ochre, quern and muller fragments, hammer stone fragments, rubbed hematite pieces.[23] The excavation brought to light 28 graves and 32 burials and was well preserved, assignable to four phases of the Mesolithic culture.[24]

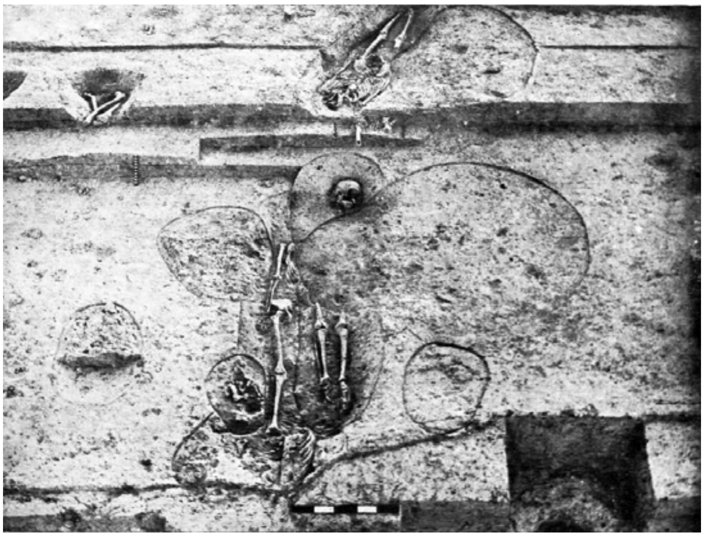


Fig. 2.6: Four phases of burials, Mahadaha



Fig. 2.7: A double burial, female superimposed over male, Mahadaha



Fig. 2.8: A burial with folded legs and hands on pelvis, Mahadaha

The burials were found in shallow and oblong pits, the orientation of them being east to west or southeast to northwest, with the head at either end.[25] The bodies were found placed in supine position, and the excavators report that the burial pit was found filled with material from the hearths and was also given a 4-6 cm of soil cushion lining.[26] The burials were single except two examples, Burials I and V. Both are double burials, the Burial I exhibiting the interment of a male and female placed side by side and Burial V had interment of two individuals, placed one above the other, the lower one in supine and the upper one in prone.[27] The burial goods consisted of bone rings, jewellery, rubbed ochre, microliths and animal bones.

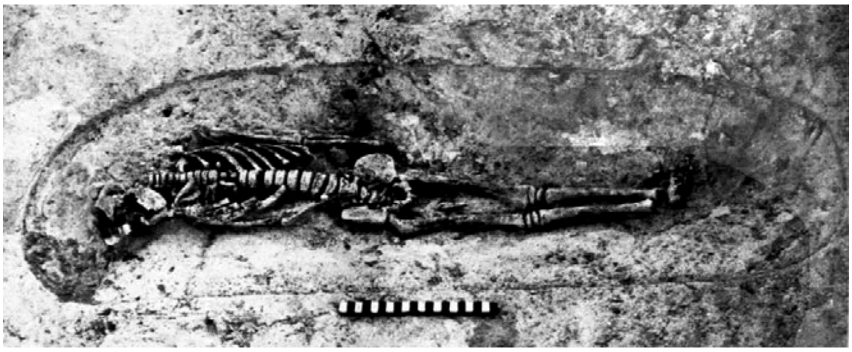


Fig. 2.9: A child burial, Mahadaha

The burial goods also consisted of bone arrowheads, microliths, snails, jaw of a carnivore animal, possibly dog, and tortoise shell.[28] The placement of the body showed many variations, in some cases the head was placed on raised ground, while in some cases, the either of the feet or feet were placed on raised ground, also in some cases both the head and the feet were placed on raised ground.[29] The excavators observe that the placing of hand is also not uniform and many forms were noticed. They observe:[30]

> *"…..In the placing of the hands no uniform practice appears to have been observed. While in some cases, both the hands were extended along the body, in others the left hand was placed along the body while the right one on the sacrum or the right hand along the body and the left placed upward or the right hand along the body and the left one on the left pelvic or abdomen. In one example, the right hand was found placed on the right pelvic while the left hand was found below the left pelvic."*

Six radiocarbon dates are available for the site, which places it between 7th and 3rd millennium BCE (2880 $\pm$ 250; 3840 $\pm$ 140; 4010 $\pm$120; 4680 $\pm$ 80; 4110 $\pm$ 60; 6160 + 60).

2.1.4 Lekhahia

The excavation at the rock-shelters and open air settlements at Lekhahia (*24^0 47' N; 82^0 8' E*), 69 km east of Mirzapur, Uttar Pradesh was carried out by University of Allahabad for two field seasons, 1962-63 and 1963-34.[31] The excavator reports a sequence of four Phases, viz., I to IV, represented by non-geometric pre-pottery non-geometric microliths, geometric microliths without pottery, geometric microliths with pottery and geometric and diminutive microliths with pottery.[32] The excavation at the rock-shelters yielded remains of 17 skeletons placed in extended position, all except two were laid in an east – west orientation and the remaining two were in north – south orientation.[33] All of the burials yielded

plenty of microlithic tools, flakes, cores, etc., as grave goods. At least eight phases of occupations have been identified based on the stratification, superimposition of one burial over another and overlapping of graves.[34] A pit dug into the bedrock of one of the rock-shelters yielded two human skulls and a mandible of an animal in advanced stage of fossilization, and all of them have been pre-dated to the deposits yielding the above-mentioned burials.[35] Five radiocarbon dates are available for the site, which places it between 8th and 4th millennium BCE (8000 $\pm$ 75; 5410 $\pm$ 115; 4240 $\pm$110; 3710 $\pm$ 110; 3560 $\pm$ 105).

2.1.5 Sarai Nahar Rai

Sarai Nahar Rai (*25^0 48' N; 81^0 50' E*) is located in the Ganga – Yamuna doab 15 km southwest of Pratapgarh and along with other Mesolithic settlements like Damdama and Mahadaha have been initially described as belonging to the *"lake cultures of the Ganga Plains"* by G.R. Sharma.[36] The excavations carried out by the University of Allahabad have brought to light 11 burials containing skeletons of 15 individuals in a well preserved condition and associated with the undisturbed Mesolithic artifacts.[37] Of the 15 individuals, seven are of males and three of females, while sex determination of remaining five individuals could not be made.[38] The bones were found in a good state of preservation and generally sturdy, in an advanced state of fossilization and encrusted with calcium nodules.[39] The graves were found in open-air settlements and in prepared grave pits and an earthen cushion were provided as protection to the head of the individual, which is generally 4 – 5 cm in height.[40] No separate burial area for male, female and children was observed, and all were buried in the same area. These burials were extended burials and oriented west – east, with the heads turned towards the west and devoid of any grave goods.[41] The body was placed in supine position with extended legs and the head turned towards either left or right. An interesting feature is the right hand of male and left hand of female individuals was found placed across the abdomen while the other hand along the body.[42] The evidence for multiple graves is also found at Sarai Nahar Rai wherein two males were found buried along two females. The age of both the sexes at the time of death was more or less common. The mean age of males ranged between 17 and 31 years, while that of females ranged between 16 and 32.5 years.[43] The average height of males varied from 173.93 to 192.08 cm while that of females from 174.89 to 187.68 cm.[44] The radiocarbon dates from Sarai Nahar Rai

indicates a chronology of *circa* 13000 – 10000 B.P.[45] However, based on the dates from other Mesolithic sites of the Gangetic plains, Pandey suggests a timeframe of 8000 – 2000 BCE for the Mesolithic culture.[46]

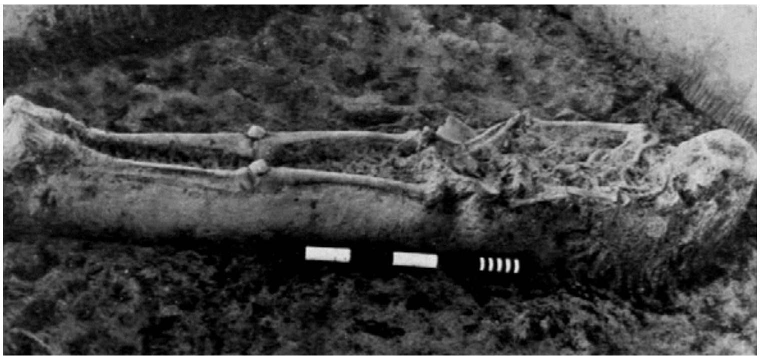


Fig. 2.10: An extended burial, Sarai Nahar Rai

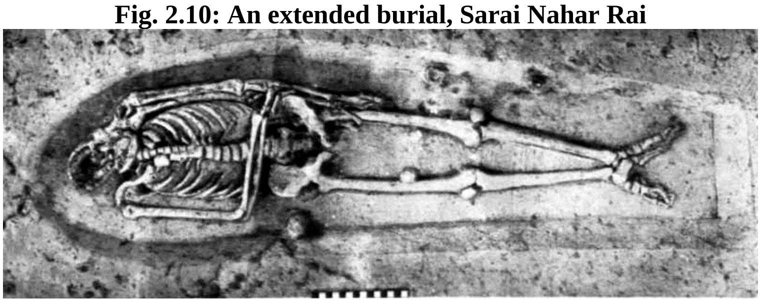


Fig. 2.11: An extended burial, Sarai Nahar Rai

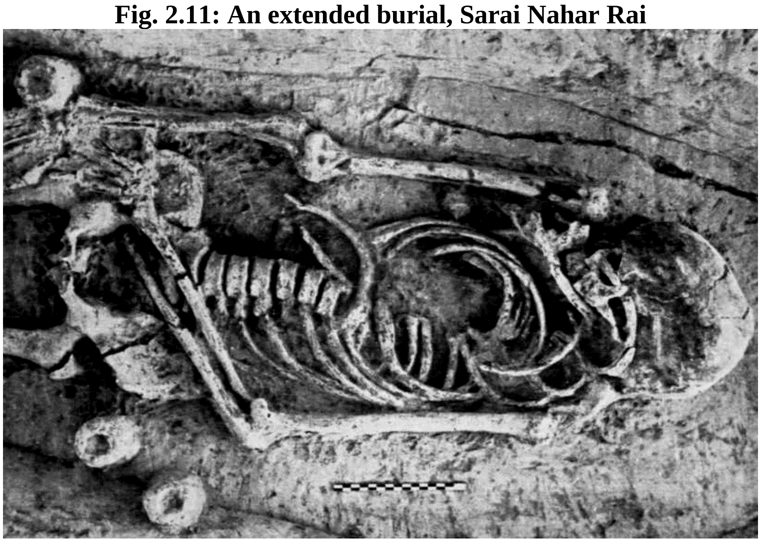


Fig. 2.12: An extended burial, Sarai Nahar Rai

The plates on the preceding page indicate various placement of the hand of individual in the burials. The hands are either placed on the pelvis, or left holding the right or right holding the right. This might indicate a certain belief system among the population and also indicate towards variations in the disposal of dead, which may be attributed to the different cultural groups among the population. Four radiocarbon dates are available for the site, which are widely separated and have to be taken with caution, even though two dates fall in the 11th millennium BCE. The

radiocarbon dates from the site are 2860 $\pm$ 120; 10050 $\pm$110; 10395 $\pm$ 110; 5040 $\pm$ 50.

2.1.6 Langhnaj

The microlithic site of Langhnaj (*23^0 26' 60" N; 78^0 28' 58" E*) was discovered by H.D. Sankalia in 1941 who later excavated it in 1944-45 and 1946-47. Subbarao put the site into excavations again in 1954 and 1959 and later by Kennedy and Corvinus in 1963.[47] The excavation at the site yielded a 5 feet deposit which is placed into three periods, viz., I, II and III, Period I represented by the presence of microliths and most of the burials found from the site. Period II marks the appearance of pottery and also microliths and mace-heads. The Period III is marked by modern pottery, iron implements and microliths.[48] The site has been dated between c. 2500 BC and 2000 BC, the earliest levels even extending before 2500 BC.[49] The site has yielded a total of fourteen burials, out of which eleven is placed in the microlithic levels. Another interesting feature of the burials is that they were found concentrated in an area of 35 to 65 m^2.[50]

2.1.7 Baghai Khor

Baghai Khor is a rock-shelter near the village Bhainsaur, district Mirzapur in Uttar Pradesh. The University of Allahabad carried out the excavation during 1962-63. The excavation yielded evidence of predominantly microlithic assemblage, with the lowest level devoid of any pottery, and the intermediary levels represented by microliths as well as pottery, while iron implements appear in the last level.[51] The excavation also yielded the remains of a human burial, in an articulated extended position, oriented on an east – west direction, and measured 1.54 m long.[52]

2.1.8 Bagor

The remains of the ancient site is located nearly a kilometer to the east of a village named Bagor in district Bhilwara, and is christened with the same name as of the village. The site is located on a sand dune on the left bank of Kothari River. V.N. Mishra excavated the site for two seasons, 1967-68 and 1968-69.[53] The excavation brought to light three cultural phases, viz., Period I – Mesolithic, Period II – Chalcolithic and Period III – Early Iron Age. The microlithic assemblage, which starts from the Period I is found throughout without any break, although the percentage decreases from bottom to top.

The Period I is characterized by geometric microliths, crude handmade pottery. Evidence of manufacturing of stone tools in the form of cores and debitage has been found from the site. The microlithic industry mostly consisted of evolved geometric microliths and represented by blunted-backed blades, obliquely blunted blades, lunates, triangles, trapezes and points.[54] The pottery, both red and dull brown ware, was initially crude and handmade, which later on in the Periods II was encountered in profuse numbers and wheel turned pottery was found in Period III. Period I is characterised by the pottery and stone paved floors, circular alignments and circular huts.[55] However, at the lower levels of this period there was very less evidence of structural activity. This has been interpreted by the excavator that occupation at this site during earliest levels was seasonal and sporadic which became sedentary during later levels.[56] Evidence of reinforced floors with schist slabs and circular huts was also encountered. The floor areas were quite moderate and measured nearly 12 m^2.

There is also evidence for a gradual transformation in the dietary practices from among the inhabitants of the Bagor. This is demonstrated by the presence of a large quantity of wild animal bones from Period I and II. The animal bones found are bovines, hog deer, spotted deer, barasinga, Indian wild boar, jackal, rat, river turtle and monitor lizard. Several bones bear cut marks and evidence for splitting to extract the bone morrow has also been found. From Period II onwards evidence for primitive food production has been found. The excavation also yielded perforated circular and oval stones, stone querns and rubbers. The last two items indicate grinding of grains. The Bagor remains have been dated to the third millennium BCE, thus making it contemporaneous with the Harappan Civilization.

2.1.8.1 Burial remains from Bagor

The excavation yielded remains of burials from all the periods. A total of five burials were encountered, one in Period I, three in Period II and one in the overlapping period of Periods II and III.[57] The solitary burial find from the Period I was found on the floor level of a hut remains and was sealed by consecutive floor levels of stones. This is an extended burial oriented on northwest to southeast, with the head towards the northwest, and devoid of any burial goods. The burial was also not complete, with the absence of vertebral, pelvis and right fibula. This has raised

several interpretations and some scholars claim that this burial can very well be a fractional burial.[58] The skull was also found damaged much, which could have been possible due to the weight of overlying debris.[59] The burials of the subsequent periods represent a marked change when compared to that of Period I. The orientation of the burials of this period was southeast to northwest and in one case it was east – west. The skeletons were also placed in a flexed position and accompanied by a variety of grave goods. The grave goods found from the burials include ceramics, ornaments, tools, weapons, etc. The ceramic types found are oval *handi*, deep basins, bowls, shallow dishes, pans, and *lota* like vessels. The typology of the ceramics represented in the burials have been interpreted as non-cooking vessels by the scholars and hence associated with the offerings made to the dead ones for their afterlife.[60] The arrangement of the ceramics in the burial is also significant. They were arranged either single or in groups. Thus, in one burial, only one pot was found, in another, a group of five pots were placed together and in a third instance eight pots were found placed in a burial in two groups, each containing four pots, again arranged one group on either side of the body. The other burial goods found in association with the burials were a spindle whorl, necklace of stone beads, copper objects like arrowheads, spearhead, awl.

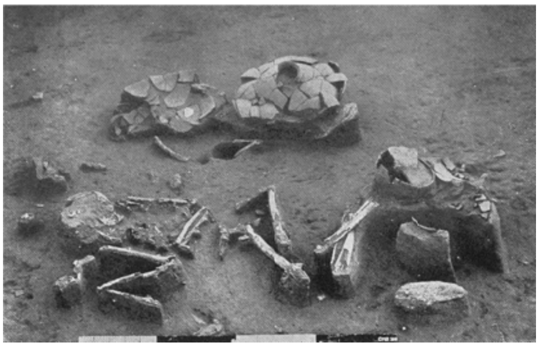


Fig. 2.13: Flexed Burial of Period II, Bagor, Rajasthan

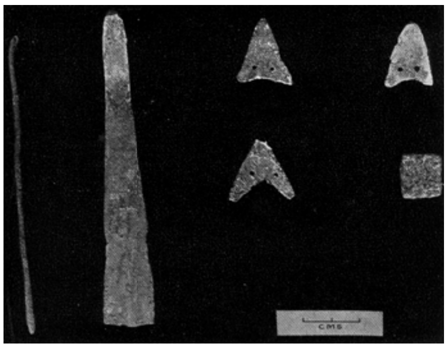


Fig. 2.14: Copper objects found from the burials, Bagor, Rajasthan

2.1.9 Rock Shelter, Deulga Hills, Orissa

A Rock Shelter (No. 2) 6 km southeast of the village Hitasara in the Deulga Hills, district Sambalpur, Orissa was excavated by P.K. Behera during 1999-2000.[61] The rock-shelter measures 28.25 X 7.51 X 6.61 m (l X b X h) and the excavation brought to light three broad phases identified from the stratigraphy.[62] The bottom-most deposit (Layer 3) resting on the bedrock consisted of lithic assemblage, *mollusc* shells, and few animal bones and foliated mica.[63] This is topped by a deposit (Layer

2) assigned to the late Mesolithic phase and consisting of microlithic and non-microlithic assemblage, *mollusc* shells, animal bones and remains of human bones.[64] The top-most deposit (Layer 1) has been assigned to advanced Neolithic phase and consists of microlithic and non-microlithic assemblage, crude potsherds, *mollusc* shells and animal bones.[65]

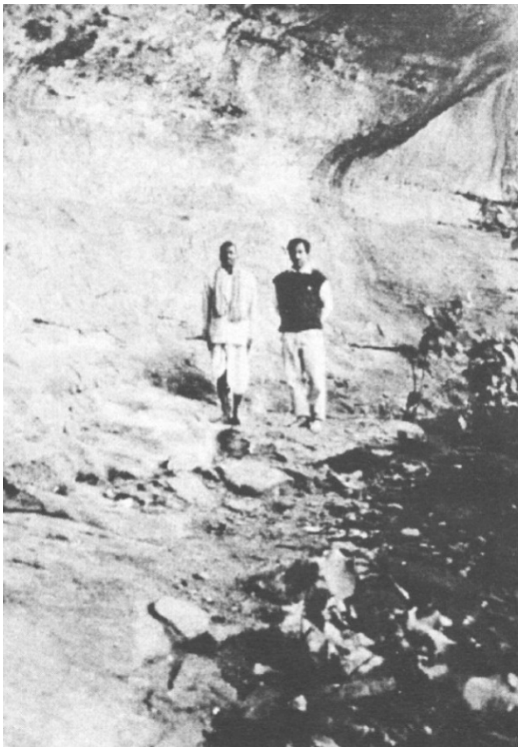


Fig. 2.15: Rock-shelter yielding human remains

The human bones were found randomly distributed in a 20 – 25 cm deposit and the 'improper anatomical orientation of the skeletal remains' has been attributed to the secondary nature of the burial, post-burial rodent activity or other disturbances.[66] The palaeo-pathological analysis of the human skeletal remains revealed fusion of vertebral bodies and other parts which have been attributed to *"degenerative disease and age-related phenomena"* and also due to *"gradual deterioration of inter-vertebral discs because of increasing mechanical stress on the back portion"*.[67] The age of the individual has been estimated to 25 – 30 years and the sex determination could not be made due to the absence of characteristic bones.

2.1.10 Dhansura

Dhansura (*23^0 20' 50" N; 73^0 15' 10" E*), a small town is located at a distance of 85 km northeast of Ahmedabad in Sabarkantha district of Gujarat. A seasonal stream namely Majham, a tributary of River Vatrak flows a few km west of Dhansura.[68] The landscape wherein Dhansura is located is dotted with low sand dunes and numerous lakes, wherein several depressions in the area representing inter-dunal lakes.[69] The quarrying activities by the local villagers exposed a 2.5 m high cliff section containing stone artefacts and fragmentary animal bones.[70] The exposed cliff section also revealed the presence of an *"extremely fragile"* human skeleton at a depth of 1 m from the surface and lying in extended condition in a north

– south orientation.[71] The excavation at *Gor-mati-ni Khan* (Dhansura I) 1 km northwest of the village Dhansura was carried out by Department of Archaeology, Government of Gujarat and DPCBL Mahira Arts and Commerce College, Dhansura during 1989-90.[72]

The excavation brought to light the presence of two cultural periods, termed as Period I and Period II. **Period I** is represented by non-geometric tools, faunal remains, a saddle quern, hammer stone and skeletal remains of two individuals.[73] The first skeleton was found at a depth of nearly 1 – 1.15 m below surface, laid in northeast – southwest orientation with the head facing east and measures 1.7 m from head to toe.[74] The other associated finds from this burial include that of a one m long bone and a chert core placed near the left arm.[75] The excavation of the second burial laid bare the remains of a teen-aged person at a depth of 0.98 m below surface, placed near the first burial, with the head, and left portion missing.[76] **Period II** is represented by the presence of geometric tools made of quartz, both opaque and translucent, chert, chalcedony and quartzite,[77] "*charred bones of small animals, birds and an unperforated stone bead*."[78] The tool industry comprises of blunted-back blades, crescents, scalene, isosceles and triangles among the microlithic forms and end-scrapers in the non-microlithic forms.[79] The Mesolithic remains at Dhansura is dated to terminal Pleistocene – early Holocene based on the palynological, sedimentological and mineralogical data of nearby sand dunes at Amarpura (western Rajasthan), Langhnaj (north Gujarat), and Didwana salt lake (Rajasthan).[80]

2.1.11 Loteshwar

Loteshwar (*23^{0}36’ 03” N; 71^{0}50’ 20” E*), locally known as *Khari-na timbo,* is located at a distance of 0.5 km east of Loteshwar village, on a sand dune on the left bank of River KhariNadi, which is a tributary of River Ruben.[81] The Department of Archaeology and Ancient History, M.S. University of Baroda excavated the site during 1990-91.[82] The excavation brought to light a maximum deposit of 1.65 m and two cultural periods, namely **Period I – Mesolithic** and **Period II – Chalcolithic** cultures having affinity with Harappan Culture.[83] The habitational deposit of Period I vary from 0.6 – 1 m, which came into existence on the surface of a stabilised sand dune.[84] The Period I is represented by microlithic tools, grinding stones, hammer stones and flat sandstone "palettes". The microliths from this period included both geometric and non-geometric tools fashioned from chert, chalcedony, quartz, agate

and jasper.[85] The other prominent finds of this period include that of small shouldered bone points and some prismatic / facetted red and yellow ochre crayons.[86] This period also brought to light the remains of two burials, the first one in an extended articulate position with the hands below the head and the lower extremity of legs drawn upwards, while the second one was traced on the western slope of the mound and found in a crouched position.[87]

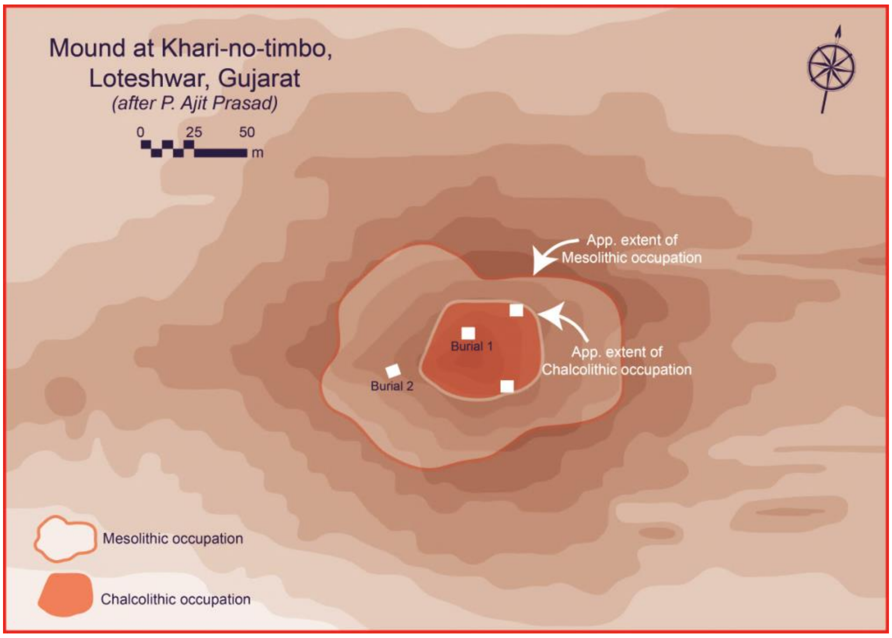


Fig. 2.16: Mound at Khari-no-timbo, Loteshwar, Gujarat (*after P. Ajit Prasad*)



Fig. 2.17: Extended burial, Loteshwar



Fig. 2.18: Crouched burial, Loteshwar

The total deposit of Period II corresponds to a maximum of 0.85 m while the regular habitation deposit is only 0.2 to 0.25 m only which is represented by a largely dump deposit and also characterised by a large number of pits cutting into the deposits of Mesolithic period up to the natural soil.[88] The ceramic assemblage of Period II consists of gritty red, red, black-and-red, burnished black, coarse red and coarse grey wares.[89]The radiocarbon dates from the site on conventional method are ca. 4703 calBCE for the Mesolithic period; 2706 calBCE and 2993 calBCE for the

Chalcolithic period.[90] The AMS dates obtained from the charred bones of Mesolithic period ranges from 8th – 6th millennium BCE (7168, 6067 and 5567 calBCE) while for the Chalcolithic period, two AMS dates confirm more or less to the traditional dates already obtained and hence this period is firmly placed in the beginning of 4th millennium BCE through the 3rd millennium BCE.[91] The AMS dates indicate a considerable gap of around 1500 years between the Mesolithic and Chalcolithic occupations at this site and places the beginning of the habitation here to the early part of Holocene.[92] Ajita Patel further argues that nearly 1000 years of occupation during each period indicates the possibility of multiple occupational levels indicating *"…..episodic year-round or, more likely (because of the seasonality of moisture availability in the region), single-season settlements or camps."*[93] Ajita Patel also raises the question on the possibility of local domestication of cattle at Loteshwar due to the presence of large wild cattle in Mesolithic and morphometrically small-sized cattle in the succeeding Chalcolithic period.[94]

2.2 Burial customs of the Neolithic and Chalcolithic Cultures of the Indian sub-continent

2.2.1 Mehrgarh

Mehrgarh (*29^0 25' N; 67^0 35' E*), district Kachi in Baluchistan province is located on the River Bolan and at the foot of Bolan Pass in the Kachi Plain. The site was discovered by Ghaus Baksh Raisani in 1968, which was located near his winter residence about 10 km south of Dadhar.[95] Mehrgarh was excavated from 1974 to 1985 and then resumed from 1996, which lasted until 2000.[96] The excavations were carried out at seven different localities labeled as MR 1 to MR 7. The cultural levels from Mehrgarh starts from Aceramic Neolithic around 7th millennium BCE and culminates in beginning of 2nd millennium BCE when the last phase coincides with the end of Harappan Civilization. Eight cultural periods have been identified from the excavations at Mehrgarh, named from Period I to VIII. The **Period I** is represented by Aceramic Neolithic tradition and mainly found from the site MR 3, presence of mud-brick structures, evidence of transition from dependence of wild flora and fauna to domestication of plants (wheat, barley and jujube) and animals (sheep, goat and cattle), microliths and polished stone axes, beads of turquoise, lapis lazuli, shell, human graves in the form of flexed and extended burials, also comparable with the Kili Ghul Mohammad I and datable from 7th to beginning of 5th

millennium BCE; **Period II,** found from the site MR 4 and is of Neolithic tradition with the presence of ceramics, both handmade and wheel turned and decorated with geometric motifs, comparable with the Kili Ghul Mohammad II and III, Mundigak I, 1-3, appearance of cotton to the already present wheat, barley and jujube, stone sickle set in bitumen, evidence of highly specialised craft working areas like bead making, chert drills, beads of copper, lapis lazuli, turquoise, and shell, graves both in the flexed and extended forms.

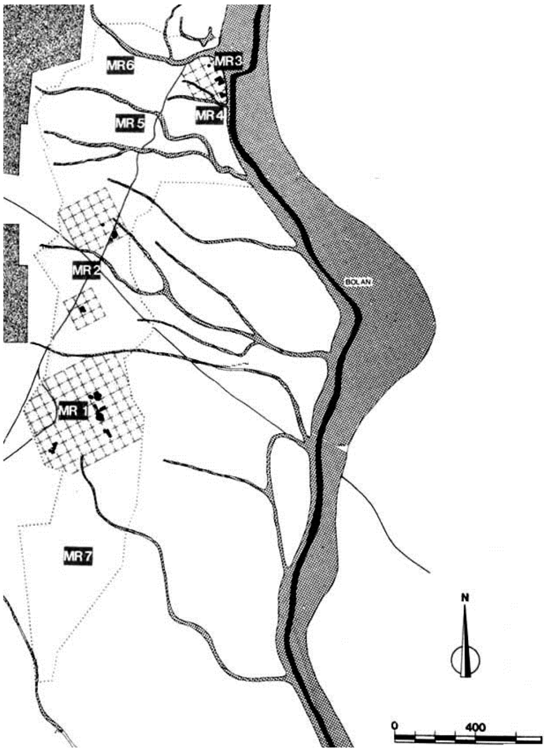


Fig. 2.19: Location of various sites at Mehrgarh on River Bolan, Pakistan

The structures were elaborate and constructed with mud bricks, compartmented buildings, and presence of a granary.



Fig. 2.20: Mud-brick structures of Neolithic Phase, Mehrgarh

Period II is datable from end of 5th millennium BCE to beginning of 4th millennium BCE. **Period III** remains were excavated from the site MR 2 and datable to first half of 4th millennium BCE. It represents the Early Chalcolithic phase at Mehrgarh with the presence of crucibles with molten metal, complex and more elaborate compartmented structures, pottery styles comparable with Kile Ghul Mohammad II & III and Togau A styles, pottery decorated with simple geometrical decorations as well as more complex geometric decorations interspersed with caprids and birds, cultivation of wheat gained prominence than barley, increase in number of bones of sheep and goats and also of wild species, working areas of lapis lazuli, turquoise, and various other stones associated with phthanite micro drills exhibiting wear traces to that of a bow drill mechanism.[97] More than 100 burials were exposed and representing great homogeneity of grave goods, marked by the presence of necklaces and bracelets of baked white steatite micro-beads and a few pendants of lapis lazuli and semi-precious stones.[98] The deposits of Periods IV to VII were found from the site MR 1 and datable from mid-4th millennium BCE to c. 2500 BCE. **Period IV** represents the Advanced Chalcolithic tradition and is marked by the presence of Kechi Beg Ware, traditions comparable with Damb Sadaat I, Togau B & C, Amri IA. Pottery decorated with monochrome and polychrome geometric decorations, appearance of stamp seal and bone seal, terracotta female figurines.

Period V is datable to the third quarter of 4th millennium BCE. In addition, marked by the presence of monochrome pottery with geometric motifs, comparable with Togau D and Mundigak II, human figurines and appearance of grey pottery.[99] **Period VI** is datable from the end of 4th millennium and beginning of 3rd millennium BCE. The settlement can be termed of the early Bronze Age and marked by presence of black on grey ware, Quetta ware, Nal polychrome, red ware with painted *pipal* motifs, the tradition comparable with Damb Sadaat II, Mundigak III, Shahr-i-Sokhta I, Rahman Dheri I and Amri II A, human figurines and compartmented stamp seals.[100] **Period VII** is datable to the middle of 3rd millennium BCE and represented by pottery traditions of black on grey ware, late Quetta ware, few Kot Dijian sherds, traditions comparable with Damb Sadaat III, monochrome pottery style of Nal, Mundigak IV, Shahr-i-Sokhta II, Kot Diji, Amri II B. Presence of monumental platform, mass production of male and female figurines, figurines of Zhob tradition, alabaster ram, stamp seals and antiquities of lapis lazuli, turquoise.[101] **Period VIII** is

represented by the presence of only burials and cenotaphs in the area to the south and southwest of MR 1.[102]This period is datable to beginning of 2nd millennium BCE and at least separated by five centuries later than Period VII.[103]

2.2.2 Burial Remains from Mehrgarh

According to Santoni,[104] following are the four burial types found at Mehrgarh:

(i) *graves (rectangular structures containing one or more skeletons with funerary material);*

(ii) *cenotaphs (rectangular structures containing only funerary materials);*

(iii) *isolated deposits of materials (either in a rectangular-shaped pit or just lying on the natural soil); and*

(iv) *large jars placed upside down (generally associated with one or two small pots).*

2.2.1.1 Neolithic Levels (Periods I & II)

The Neolithic levels at Mehrgarh are represented by Periods I & II. Period I, marked by the Aceramic Neolithic tradition at Mehrgarh is represented by nine successive levels of occupation, with alternating grave pits and chambers. The burial pits were dug inside the collapsing buildings, which were used as dumping area by the people living in the adjacent area.[105] This area was used as graveyard for a considerable period until high density of graves did not allow further burials; thence this area was levelled and later used as a habitation. Such repeated occupation and levelling activities were witnessed intervened by graves. A total of 220 burials of Periods I and II were excavated, of which 175 were exposed during 1977 – 1985 and 145 during 1997 – 2000. The general architecture of the burial consisted of a grave pit roughly in the form of "L", with the burial chamber located at the bottom, which is closed with a mud-brick structure, once the body is interred. The mud-bricks were arranged in alternative transverse and horizontal rows, which were found, collapsed onto the skeletons.[106] Also in many cases, only the grave pit was found and the structure was absent.[107] The grave pits on an average were dug to a depth between 1 and 1.5 m. The majority of the graves were primary ones, while a small percentage were secondary burials, which also included a small portion of the whole skeleton.[108]

The dead ones were laid on one side, predominantly on the left side, while other modes like lying on the right side, dorsal and in any position were also found.

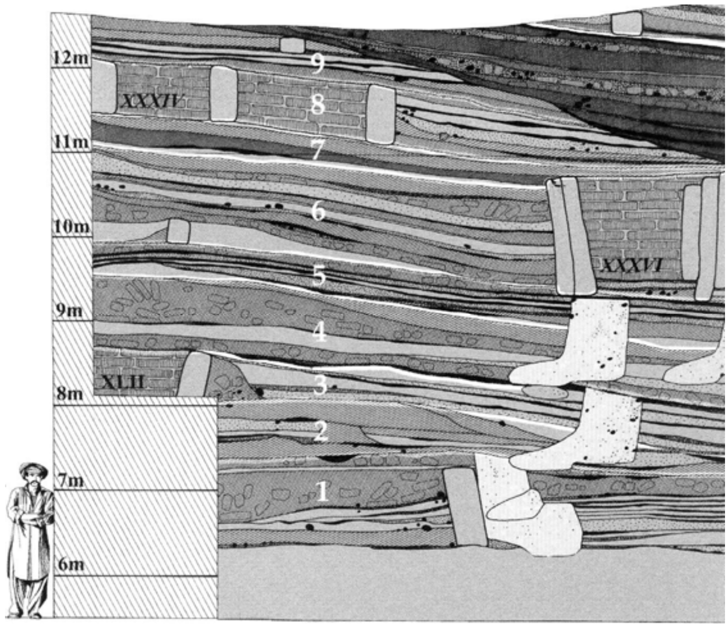


Fig. 2.21: Part of a section in MR 3 showing nine levels of occupation and burial activities, Mehrgarh

The orientation of the burials was east to west in majority of the cases, with the skull on the east, facing south, on the northern wall of the grave wall.[109] Burials laid in southeast to northwest form the next category, and burials laid in many different directions form a small portion of the grave typology. The skeletons were found with the legs and arms drawn forward, in a fetal position and with varying degrees of flexture.[110] In some cases, the burials were found with legs drawn backwards, the femur and tibia placed parallel to each other and the heel touching the pelvic bone.[111]

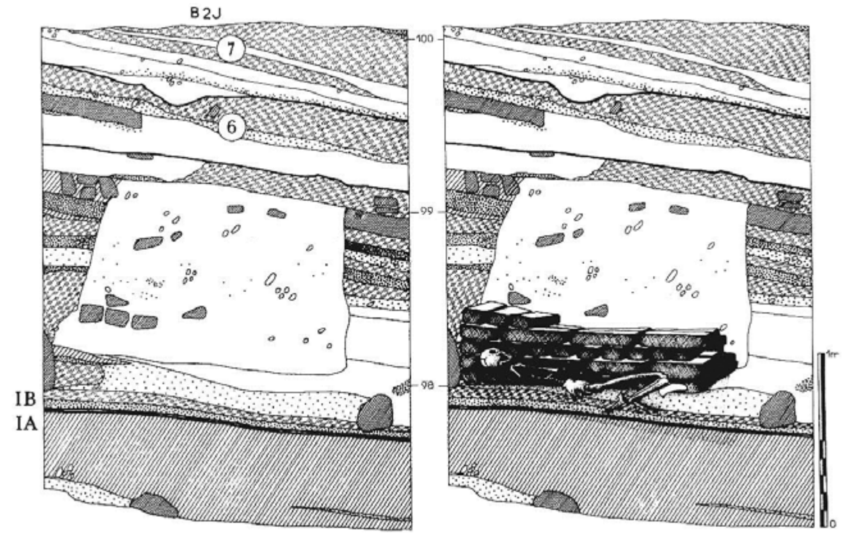


Fig. 2.22: Section showing the nature of burial pits, Mehrgarh

Majority of the burials contained individual interments, although some burials with double interments were also noticed. Evidences indicate the floor of the burial was covered with red ochre before the body was laid, and in turn, the body was also covered with red ochre, then dressed and adorned with personal ornaments. Another interesting evidence is the placement of cobbles of red ochre, either by the side of the head or foot of the body.[112]The grave goods found with the burials were simple as well as elaborate and rich. Burials with bone spindles; polished stone-axes near the skull of many individuals; un-retouched blades, microliths and flint cores with a male adult; stone and bone placed in the hand of another individual; a female adult burial containing tools and ornaments made of bone; and interestingly one female burial was found holding a large sized clay figurine in her hand.[113] The excavator believes that these burial goods reflect the activities of the deceased ones. Some burials were extremely rich in grave goods. They were in the form of shell head-bands from several female burials, which is described by the excavator as:[114]

> *"…. were made up of woven rows of small dentalium segments and were closed by two straps used as claps and ornamented with perforated natural shells."*

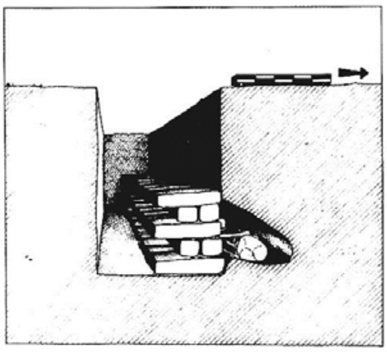




Fig. 2.23: Section showing a grave pit, mud-brick wall in the pit and a reconstruction of the burial architecture, Period IB, Neolithic levels, Mehrgarh (left); Fig. 2.24: Headband decoration in one burial, Mehrgarh (right)

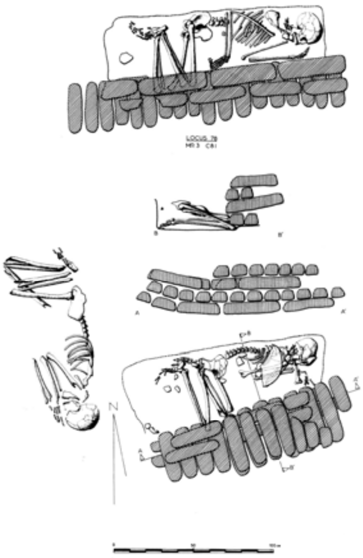
Another characteristic feature of many of the graves is the interment of one or several young goats along with the dead ones. The goat remains were found placed in a semi-circle around the legs of the dead ones. The goat remains were mostly in association with young females, which in lower levels were placed on the burial floor, while in later levels were found placed in baskets.[115] The other grave goods found in association with several of the burials are bitumen-coated basket, necklace with turquoise and shell beads, mother-of-pearl pendant, shell-beaded necklace, flint core, polished stone axe, ochre-covered pestle, concave-

backed flint trapeze, necklace of black steatite beads, in one instance a necklace of more than 700 beads, shell beads on the wrists, ankles and in the belt, and so on.



Fig. 2.25: A female burial with a clay figurine in her hand, Mehrgarh

The association of several grave goods, both simple and rich in character may reflect the social status of the person buried.



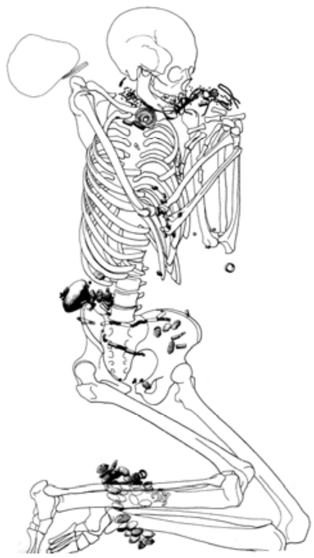


Fig. 2.26: Plan of the burials showing the general arrangement, Mehrgarh (left)
Fig. 2.27: A burial with ornaments as grave goods, Mehrgarh (right)

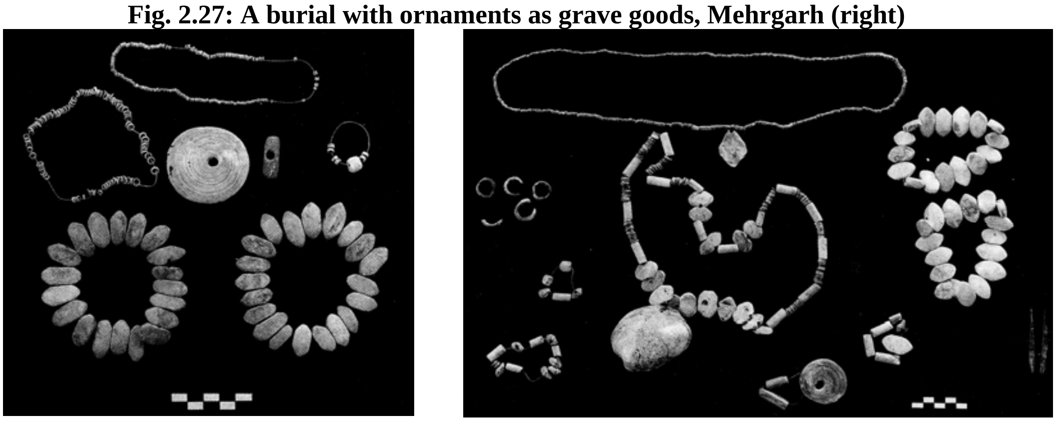


Fig. 2.28: Ornaments as grave goods, Mehrgarh

The association of one or several goat remains from some of the burials in the Neolithic levels has been interpreted as the existence of specialisation in goat husbandry in the earliest phases of animal domestication.[116] The demographic studies conducted on the skeletons have indicated that sub-adults were well represented in the Neolithic levels, infant mortality within first year of birth was relatively high, and in the age group of 0 – 4 years was also high, but in consistent with the demographic models of ancient populations.[117]



Fig. 2.29: Burials in association with goat remains, Mehrgarh

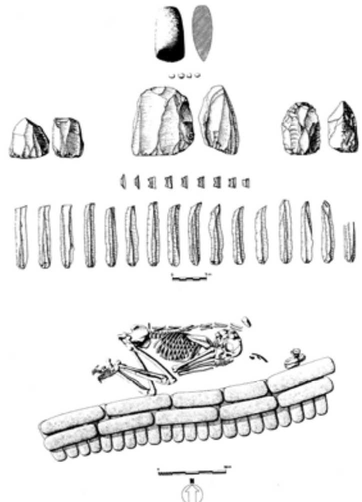




Fig. 2.30: Burial of a lithic craftsman, Mehrgarh (*left*); Fig. 2.31: Burial of a child of seven years old with elaborate grave goods, Mehrgarh (*right*)

Except for higher male mortality noticed in the age group of 25 – 30 years, the mortality rate was consistent among both the sexes.[118] Males were taller than the females, the average height of males being 170 cm and of females being 160 cm, with the tallest female reaching a height of 175 cm.[119]

2.2.1.2 Early Chalcolithic levels (Period III)

The Period III at Mehrgarh corresponds to the Early Chalcolithic tradition as mentioned above and the cemetery of this period is located towards the centre of MR 2, a little west of the mud-brick buildings of the habitation area of this period. The excavation yielded 125 burials of Period III at Mehrgarh. It has been observed that the burials were found in heavy concentration and at sometimes placed very close to each other. Hence, at places the density of the burials was as low as 1.7 individual / sq. m.[120] Based on the burials excavated, it has been estimated that the extent of the cemetery as 800 m^2.

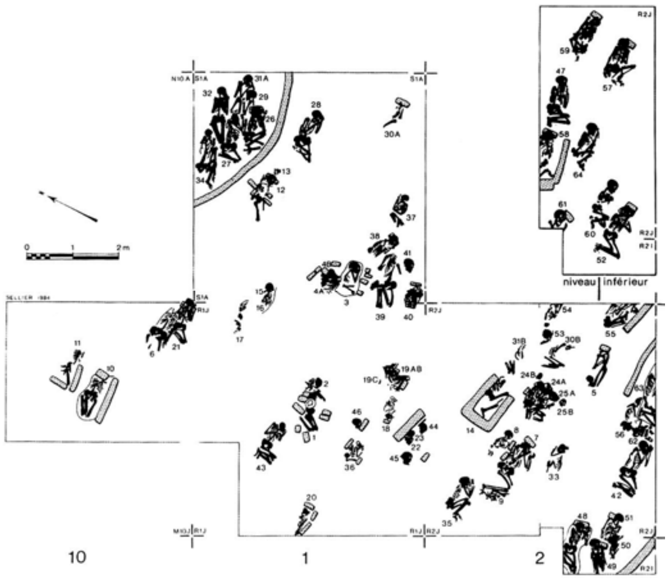


Fig. 2.32: Cemetery of Period III levels, Mehrgarh

There were noticed marked changes in the burial customs, traditions between the Neolithic, and Chalcolithic levels, i.e. Period I & II and III. While the orientation of the burials, which are placed in east – west direction with the head towards east, continue along with the other traits, like placing the body on one side and flexed condition and grave goods, many traits like abundance of red ochre coating on bodies, animal offerings, burial side-walls, pottery, bitumen, stone and bone tools, stone vessels, etc., are discontinued.[121] While majority of the burials are in east – west orientation, some of them were in different positions like the one facing north, uncommon half-seated position. Isolated bones and heaps of completely disconnected bones also represented a small percentage of the burials. Nearly 25% of the skeletons were found resting on one mud-brick, which have been called as 'pillow-brick'.[122] A marked departure from the Neolithic levels is the absence of

burial architecture, and only scarce evidence of pit lines were noticed, and very few mud-bricks that could have surrounded the burials, but in a dislocated condition.

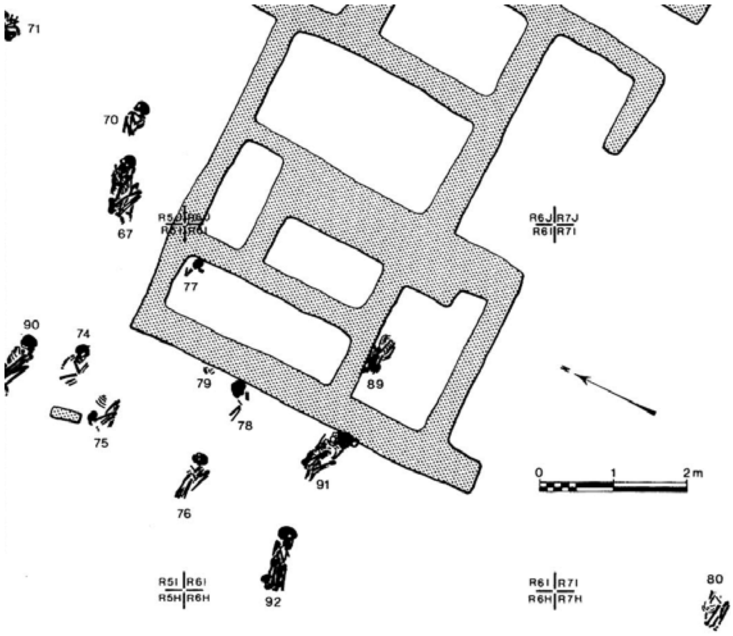


Fig. 2.33: Location of various burials of the graveyard of Period III levels, Mehrgarh

Three broad burial types have been described by Samzun and Sellier:[123]

(i) *….simple isolated skeletons (approximately 2/3 of the whole);*

(ii) *….associated of two individuals….obviously buried simultaneously as shown by their closeness or direct superposition;*

(iii) *….genuine collective sepulture.*

The grave goods of this period were also not elaborate and rich as noticed in the preceding periods. Further, they were also of inferior quality. The burial goods that are found in association with the burials are dentalium shells, compartmented copper seal, pottery, necklaces or pendants made of lapis lazuli, turquoise, carnelian, chrysoprase, beads of steatite. The excavator observes thus,

> *"these burials, like all the others found in the various sectors of Area MR 2, are characterized by great homogeneity of grave goods, which are limited to necklaces and bracelets of baked white steatite micro-beads and a few pendants of lapis lazuli and other semi-precious stones…..there is a reduction in the quality of funerary jewelry in comparison with that made of shell and semi-precious stones in the Neolithic…The replacement of shell and black steatite by fired steatite beads in funerary ornamentation is part of a general development of craft activities that culminates in the Indus Civilization".*[124]

Based on the study of the various factors of the burials, it has been concluded that the women have a different status, probably a higher one than the men and immature.[125]

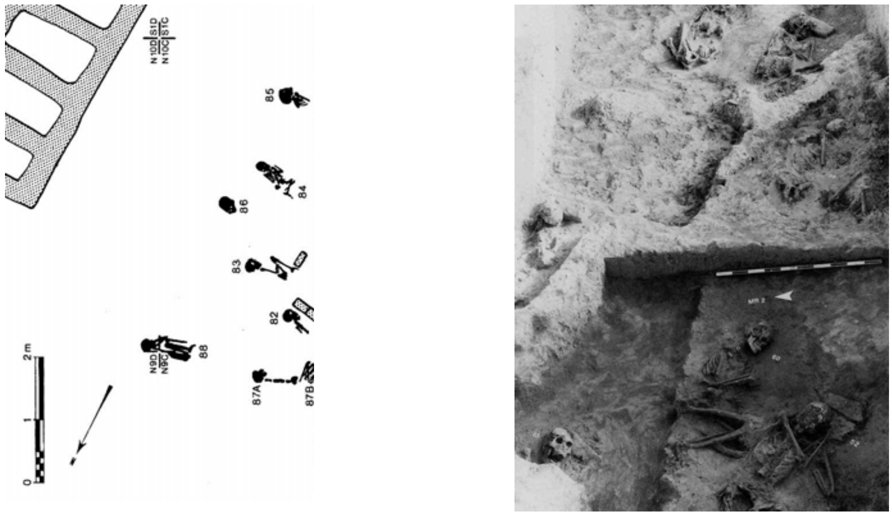


Fig. 2.34: Location of various burials of the graveyard of Period III levels, Mehrgarh

Further, children under 14 years were associated with re-inhumation and associated with another individual, and lack grave goods like that of disconnected adults.[126]

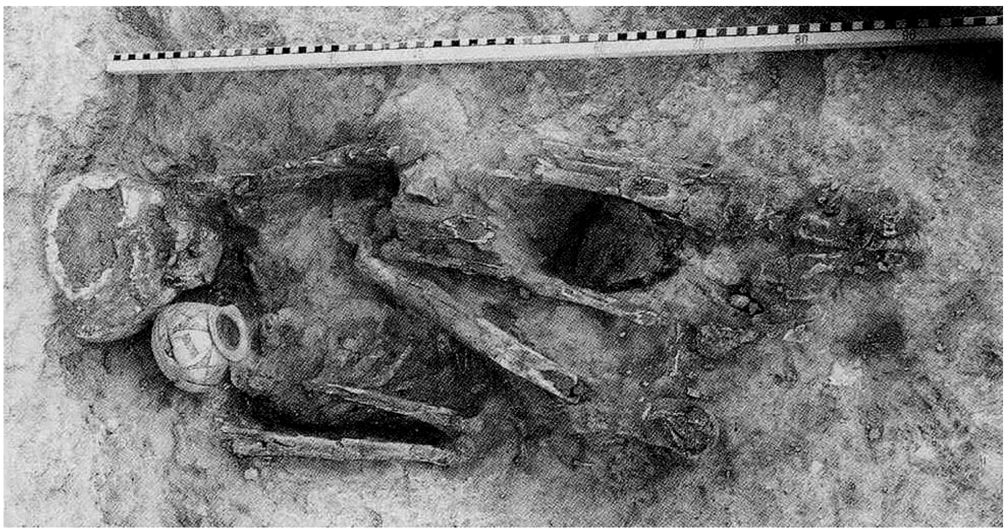


Fig. 2.35: A burial of Period III levels with a painted pot, brown on cream slip, Mehrgarh

Samzun and Sellier also observes that[127],

> *"….Chalcolithic Mehrgarh finally gives the feeling of a higher specialization in all fields, architectural, technological and moreover funerary as evidenced by rigorous codification of the burial practices, probably related to a certain degree of social complexification, with specific sectors (collective sepulture; exclusion of the newborns and very young children) and characteristic associations with grave deposits and types of inhumation (primary or not).*

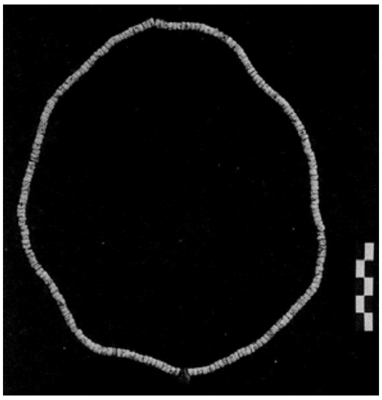


Fig. 2.36: White steatite necklace from a burial of Period III, Mehrgarh

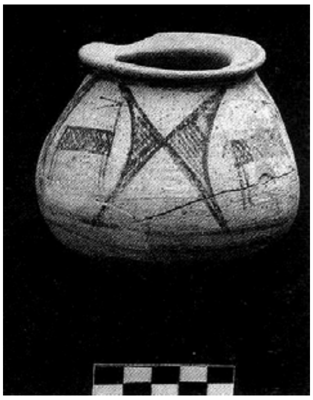


Fig. 2.37: Painted pot from the above-mentioned burial, Mehrgarh



Fig. 2.38: Burial of an adult and a child of Period III, Mehrgarh



Fig. 2.39: Collective Sepulchre of Period III, Mehrgarh

2.2.1.3 Advanced Chalcolithic levels (Periods IV to VII)

2.2.1.3.1 Period VI

A set of nearly nineteen infant burials were excavated from MR 1 Area C, out of which eight were still sealed by two bricks when discovered, and thus represented a box like grave. All these graves were oriented east – west with their heads facing south and three layers of such graves were discovered, the lower layer dating to Period VI, while the top two layers correspond to Period VII.[128]The skeletons were badly preserved, and very less burial goods were found, with only one or two beads in silicate of magnesium.[129]

2.2.1.3.2 Period VII

Evidence for burying the dead during this period is found from MR 1, where a cemetery for children was found on two levels. This cemetery bore remains of

young children who died between birth and three or four years of age, and was placed in flexed position, facing towards south and their heads towards the east and feet to the west.[130]

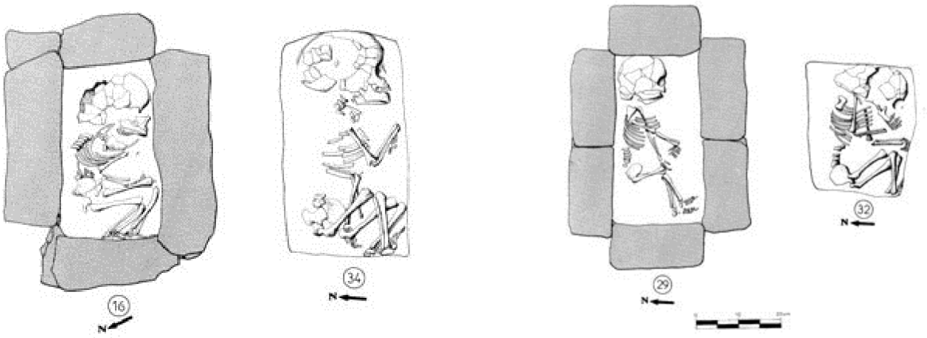


Fig. 2.40: Infant burials of Period VI, Mehrgarh

The receptacle of the funeral remains is in the form of a small box made of mud-bricks and filled with dry mud.[131] The burial goods consisted of only terracotta beads. The nature of these burials indicates that the bodies were usually interred in mud-brick boxes, in shallow pits on a flat surface near the houses.

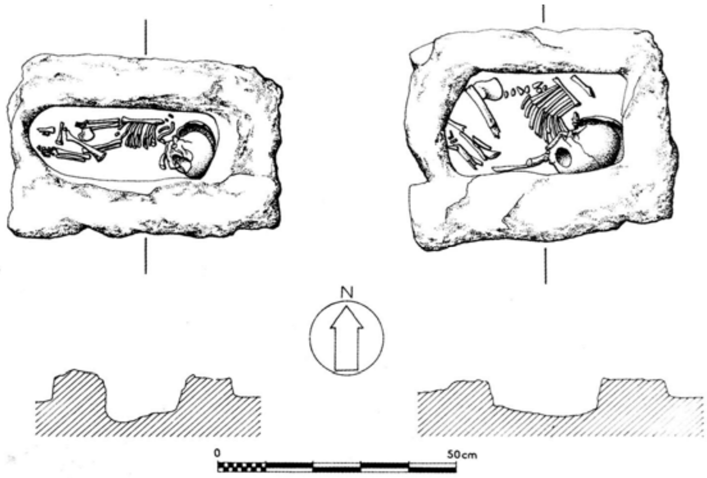


Fig. 2.41: Infant burials of Period VII, Mehrgarh

Several infant burials belonging to the Period VII were also unearthed from the central portion of MR 1. These burials were set in box-like chambers made of mud-bricks set on edge,[132] and their size is generally 60 cm in length and 45 cm in width and the depth ranging from 15 to 25 cm. The orientation of these burials is roughly from southeast to northwest and skeletons of infants from birth to three years of age were found from thirteen graves.[133]The infants were placed in fetal position, with the body either turned towards the east (7 cases) or west (6 cases). The burial goods were very limited and consist of disc-shaped beads. An adult burial of this period was also found from MR 1, which was buried in a clay box

measuring 110 cm X 80 cm, and the skeleton found lying in a flexed condition and placed on its right side in an east – west orientation, the head turned towards north.[134] The burial goods consist of two plates, necklace of white beads alternating with carnelian and lapis lazuli beads and bracelets of tiny white beads. Thus, it could be observed that the burials of Periods V to VII generally consisted of infant burials, who were interred in small mud-brick boxes.

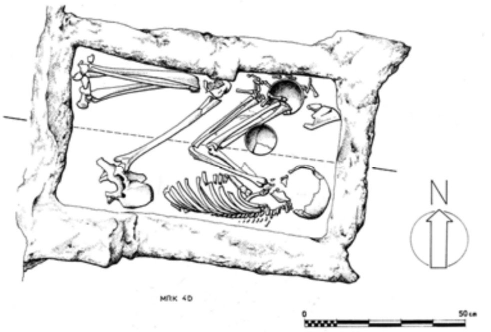


Fig. 2.42: Burial in a clay box of Period VII, Mehrgarh

The age of the infants is from birth to 3 – 4 years and the orientation is from east – west with the head turned towards east, placed in flexed position. The concentration of child burials at a single place also indicates that this area was specially meant for cemetery for children. The funerary goods of these periods were less impressive and consisted of only beads or groups of beads of steatite, worn around the neck.[135] The other burial goods consisted of pendant of gypsum, painted ceramics, rectangular grinding stone and its pestle.

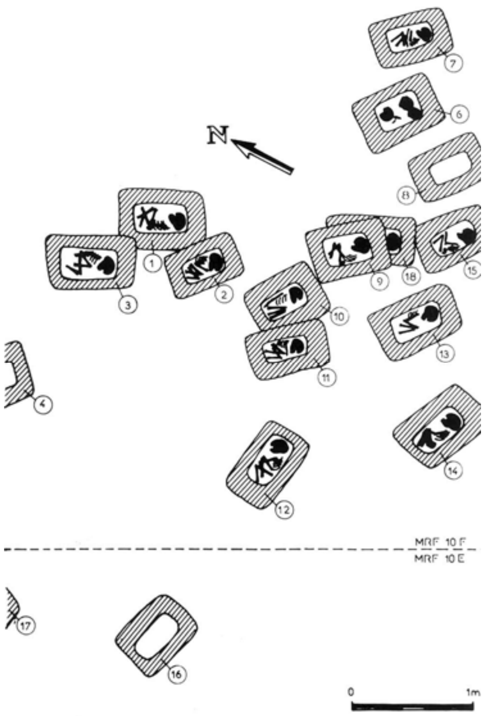


Fig. 2.43: Infant burials of Period VII, Mehrgarh

2.2.1.3.3 Period VIII

The burials of the Period VIII were found from an area to the south and southwest of MR 1 and this period is only represented by funerary remains and not of any habitational remains. The burials were found either in graves or cenotaphs and isolated deposits of materials, oriented in east – west with burial goods. The excavation brought to light at least eight graves and six cenotaphs.

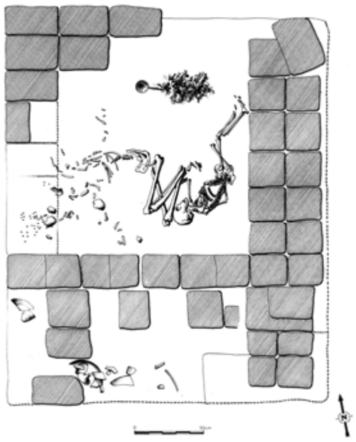


Fig. 2.44: Plan of a tomb, Period VIII, Mehrgarh

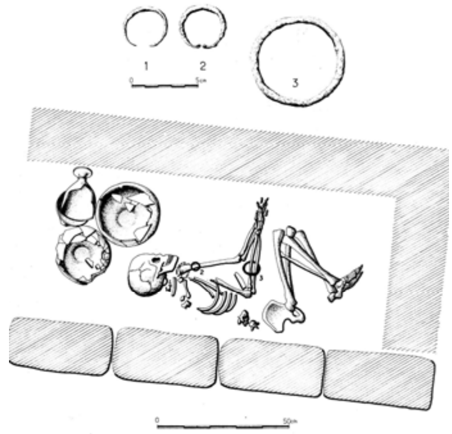


Fig. 2.45: Plan of a tomb, Period VIII, Mehrgarh

The graves measure about 2 X 3 m and most of them were found in a disturbed condition. The skeletons are oriented in east – west, facing either south or north, and a solitary example of a burial consisting of an adult and a child was found.[136] The burial goods consist of pottery, bronze vessels, jewellery, limestone or mother of pearl ornaments. The pottery forms and bronze objects are comparable with those found from Bactria, Margiana and southern Turkmenia.[137] Another set of graves were found nearly 200 m west of the above graveyard, where six cenotaphs measuring 3 X 2 X 0.5 / 0.75 m were found. Here the occurrence of burnt surfaces has been identified with rites related to cremation.[138] These cenotaphs are also oriented in an east – west direction, built semi-subterranean and dug into burnt areas. Four of the six burials contained grave goods, while the remaining two were found empty. This area also contained burials of the type represented by large isolated vases, in association with bronze objects, and at one instance, in association with beads of various semi-precious stones, terracotta rattle with multiple flower-like impressions.[139] The fourth set of burial type represented by large jars of coarse, sherd-tempered ware, lying upside down and at times covering a small goblet or associated with small pots, was also found in this cemetery area.[140]

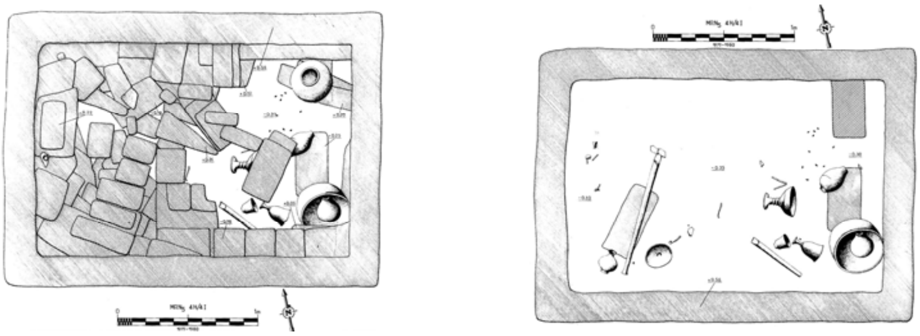


Fig. 2.46: Plan of cenotaph, Period VIII, Mehrgarh



Fig. 2.47: Detail of cenotaph, Period VIII, Mehrgarh



Fig. 2.48: Detail of cenotaph, Period VIII, Mehrgarh

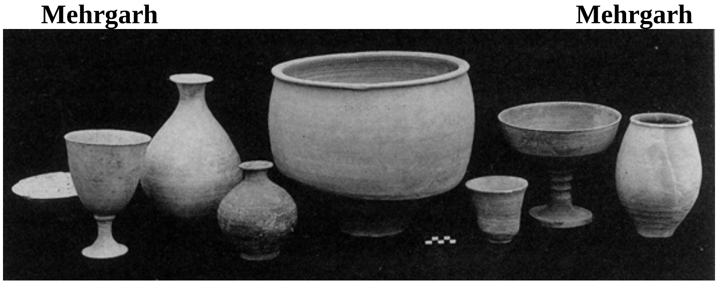


Fig. 2.49: Typology of funerary goods found in Period VIII, Mehrgarh



Fig. 2.50: Typology of funerary goods found in Period VIII, Mehrgarh



Fig. 2.51: Typology of funerary goods found in Period VIII, Mehrgarh

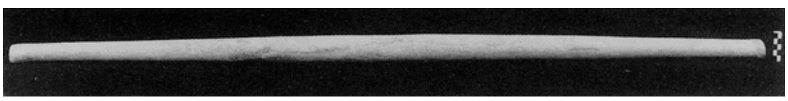


Fig. 2.52: Limestone sceptre from a cenotaph, Period VIII, Mehrgarh

The pottery found from the burials of Period VIII is comparable with those found from a site known as Sibri, located close to the Harappan site of Nausharo. Based on the typology of the pottery finds from Period VIII burials from Mehrgarh

and its similarities with other sites like Sibri, Nindowari (final phase), Kulli Damb, Mehi and Shahdad, a date of second half of third millennium BCE and beginning of second millennium BCE has been suggested for this period.[141] Some of the other interesting burial goods include that of microliths (in two cenotaphs), two perforated jars near one of the cenotaphs, the latter has been associated with the Harappan civilization.[142]

2.2.2 Burzahom

Burzahom (*34^0 10' N; 74^0 54' E*), located in district Srinagar, Jammu & Kashmir, is an important Neolithic settlement in India. The site was known as early as 1914 and the Yale – Cambridge University investigations of the Kashmir Valley brought to light polished stone axes, black polished pottery and bone awls from a stratified context at this site.[143] The excavations were carried out by the ASI from 1960-61 to 1970-71 and the cultural levels have been put into four phases, viz., Phase I and Phase II –Neolithic of which the first phase is now recognised as the aceramic phase of the Neolithic Culture, Phase III – Megalithic and Phase IV – Early Historic Period. Subsequent to the excavations at Gufkral, three sub-phases were also delineated at Burzahom. The earliest occupation at Burzahom started on the virgin soil and was devoid of any pottery remains and the structural remains consisted of dwelling pits, circular or oval. It was followed by a phase, which saw the appearance of handmade pottery of steel grey in colour and shades of dull red, brown and buff. The bottom of the pottery often had mat impressions. The antiquities consisted of stone tools represented by axes, chisels, adzes, pounders, mace-heads, points and picks while a predominant bone tool repertoire was also noticed.

2.2.2.1 Burial Remains from Burzahom

The excavation at Burzahom yielded both human and animal internments, mostly within the habitational areas itself, and belonging to Neolithic and Megalithic periods.[144] The Phase – I of the Neolithic levels however, did not yield any burials. The other Neolithic site of the same complex, namely Gufkral, did not yield burials from the excavations, and the excavator feels that there was a separate area for burials at the northeastern corner of the mound, which could not be put into proper excavation.[145] At Burzahom, in total ten human and eleven animal burials were excavated, located mostly inside the houses and below the floor levels. The human

burials consist of five males, three females, one juvenile and one child and the burials pits were circular in nature and were sealed by plastered floors of the houses.[146] The orientation was in northeast – southwest or northwest – southeast direction for both the human as well as animal burials, while the human burials were buried individually, collective burials of animals were noticed in certain instances.[147] Interestingly, the human and animal burials of the Neolithic levels were treated with red ochre. As mentioned above, among the burials, five were of males, three of females, one juvenile and one child and of these, seven belonged to the Phase – II of Neolithic levels and rest of the Megalithic levels.[148] The burials are found in deep burial pits mostly circular in shape, albeit other shapes are also noticed, and the interior surface coated with *chunam*.[149]

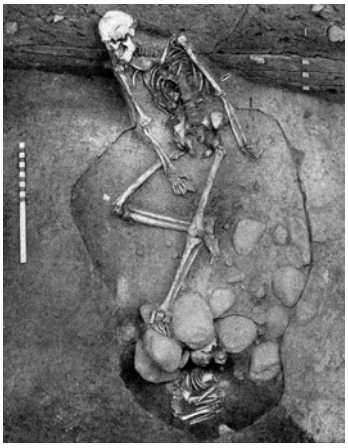




Fig. 2.53: Burials of Neolithic phase, Burzahom

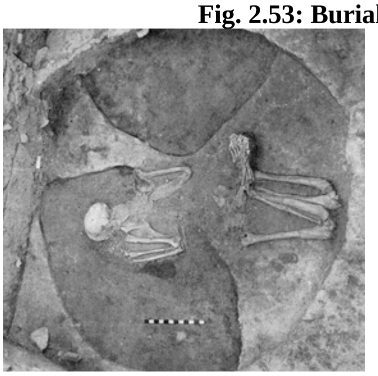


Fig. 2.54: Human skeleton with traces of red ochre, Burzahom

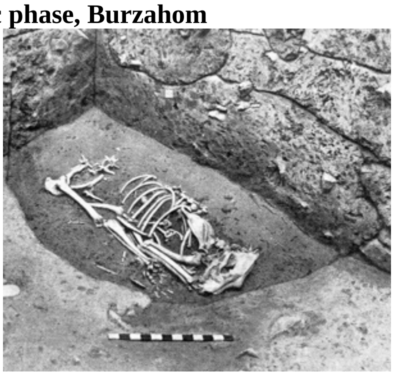


Fig. 2.55: Skeleton of a wild dog, Burzahom

Both primary and secondary internments were noticed, the primary ones consisted of both extended with the hand and legs folded and crouched placement of human remains. Only two instances of secondary burials was encountered in which the skull and long bones were buried after desiccation,[150] which were also treated with red ochre solution. The orientation and position of the head indicated that most of the skulls are placed towards the east, which might indicate the belief of life after death.[151] The cranial capacities of the male ranges from 1469 to 1493 cc and those of

the female ranges from 1353 to 1413 cc, while the average stature is 169.6 cm.[152] Evidence of trepanation of a female skull is noticed from the burials, which contains evidence of at least 11 attempts of various diameters.[153] The trepanation holes indicate that they were carried out in quick succession and probably the individual did not survive the surgical exercise.[154] The presence of burial goods is very minimal and restricted to five miniature pots in one instance, a paste bead, a soapstone disc with three linear perforations and five carnelian beads in each of other four burials.[155] Animal bones were also buried along with some human burials, with the like of dog, antler, sheep and goat.[156] The Megalithic levels at Burzahom yielded three burials, one of which had a continuation of oval *chunam* lined pits from the Neolithic levels.[157] A change in the alignment from southeast – northwest of Neolithic period to east – west is also noticed here, while the practice of giving *chunam* lining for the pits and treatment of application of red ochre was also abandoned.

2.2.3 Nagarjunakonda

Nagarjunakonda or Nagarjunadurgam (*16^0 31' N; 79^0 14' E*) is located in Guntur district of Andhra Pradesh and consisted of a large number of archaeological sites which was discovered in 1926 by Rangaswamy Saraswati, Telugu Assistant to the Government Epigraphist of India.[158] The discovery was also possible due to the antiquarian interest of several educated locals. The preliminary investigations in the valley concentrated mainly on the epigraphical finds, which were studied by A.H. Longhurst, Hirananda Sastri and Vogel. Longhurst explored the valley between 1927 and 1931 and discovered a large number of remains like monasteries, apsidal temples, stupas, inscriptions, coins, relics, pottery, statues, over 400 bas-reliefs in the Amaravati style, besides remains of many structures.[159] T.N. Ramachandran excavated a stupa and vihara during 1938-40.[160] Later, on the course of the construction of a huge reservoir at this site, extensive explorations and excavations were carried out between 1954 and 1961 by the ASI. The prehistoric remains were brought to light during the course of this project only. Of particular interest and scope of this dissertation, evidence for burials was found from the Neolithic and Megalithic periods. The excavation has revealed three phases in the Neolithic Cultures, which are christened as Phase I, II and III. **Phase I** is represented by, *"crude handmade pale reddish brown pottery, short blade microlithic industry on*

chert, crudely fabricated neoliths, use of basalt and quartzite flakes, scarcity of animal bones, total absence of disc-circular bead, pottery disc and grey ware."[161]

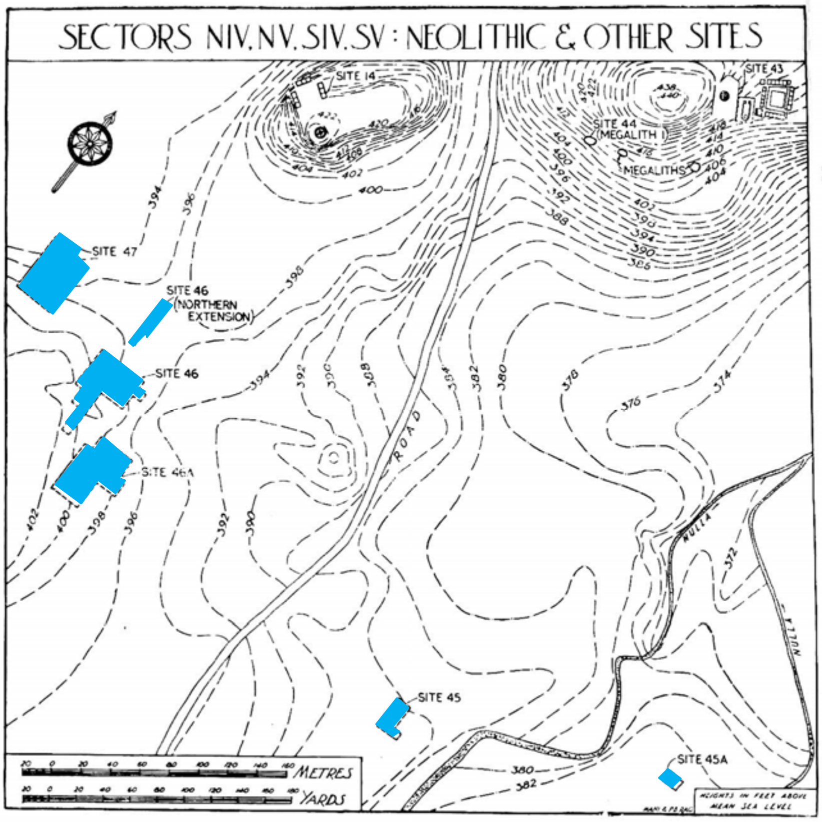


Fig. 2.56: Location of Neolithic sites, Nagarjunakonda

Phase II is characterised by *"red ware, few unslipped red ware, grey ware, chert and quartz microliths, few neoliths, disc-circular beads, slightly higher percentage of grayish quartzite flakes, large quantity of animal bones, restricted number of pottery types, dwelling in pits and prevalence of extended inhumation."*[162] **Phase III** is represented by *"grey and red wares, Neolithic tools of various types, quartz-crystal microliths, grayish quartzite flakes, disc-circular beads of paste, steatite and shell, working on bone and horn; dwelling in square or rectangular houses as well as in pits, large number of pottery types, ….urn burials for infants, adults and children buried in cemetery in extended positions and post-excarnation burials…."*[163] The Phase I has been assigned to pre-2500 BCE, Phase II to c. 2000 BCE and Phase III to c. 1500 BCE mainly based on comparative analysis of pottery occurring from other dated sites. The burial remains found from Nagarjunakonda sits have been classified into the following categories:

(A) *Disposal of the dead in cemetery site (Site 68) belonging to adults and children,*

(B) Disposal of infants in urns discovered from habitational areas and

(C) Skeletal remains of an adult male in a pit of Site 46 A.

2.2.3.1 Burial remains from the Cemetery Site, Nagarjunakonda

The cemetery site is located nearly 2.5 km west of the main Neolithic settlement of the valley,[164] and the excavation brought to light burials of 6 male adults, 3 female adults and an infant. Based on the stratigraphy, two levels of burial activities have been noticed, both are separated by at least 30 cm of deposit. The bottom level yielded one burial each of adult male and female remains, both in primary and articulated conditions. The remaining burials were found from the upper level, and the mode of disposal continued, with another variety, which however dominates. The new mode that was noticed involved post-excarnation-burial type, involving multiple process and two double-burials.[165] This has been interpreted by existence of two different burial customs, which might belong to two different social groups, if not cultural or racial, even though there is no change in the pottery types.[166] The burial goods consisted of only pottery, mostly spouted and generally kept near the lower half of the dead. While the pottery finds resembles from those of habitational sites, a lower level burial yielded a unique type of short-spouted vessels, with lower part of the body slightly recessed and base well defined,[167] while the upper level burials yielded a unique type of high-necked vessel with long spout and straight-sided mug.[168]

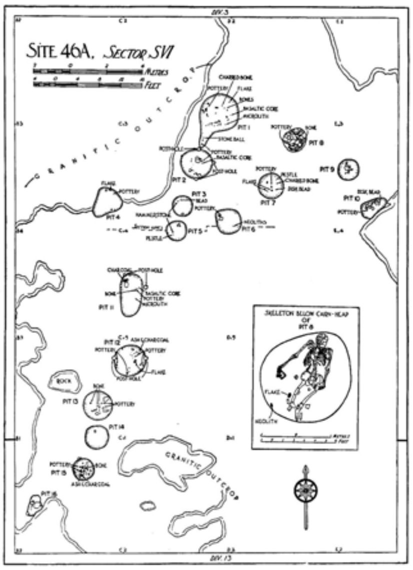


Fig. 2.57: Distribution of pits of Neolithic period, Nagarjunakonda

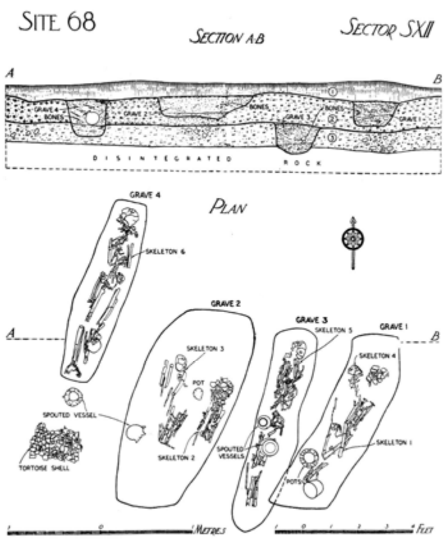


Fig. 2.58: Section and plan of Neolithic graves, Nagarjunakonda

The burials were oriented in a north – south direction, the skull placed approximately towards the north. The burial pottery was generally placed near the lower part, however some exceptions were found, like in one example, four spouted vessels were found right upon the femur and tibia.[169] In another type, a broken pot was found between the skull and thoracic region, while in two cases, pots were placed near the ankle. In one case, a broken pot was found to the west of skull bones. Thus, the excavator feels that there was no fixed rule in positioning the burial pottery, but a clear preference of placing them towards the west or right site of the lower half of the skeleton.[170]

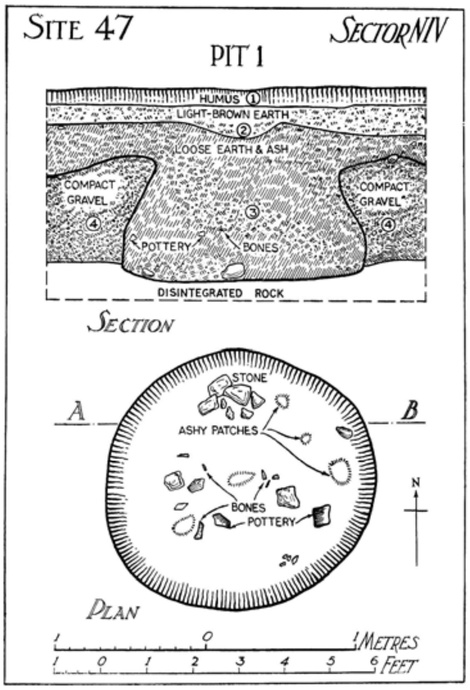


Fig. 2.59: Section and plan of a Neolithic pit burial, Nagarjunakonda

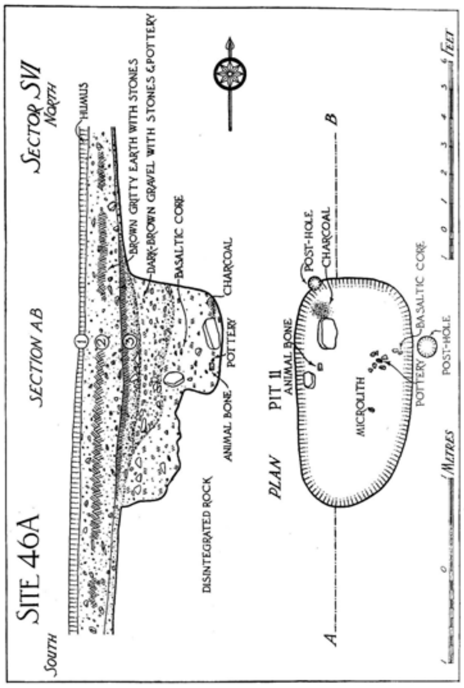


Fig. 2.60: Section and plan of a Neolithic pit burial, Nagarjunakonda

2.2.3.2 Infant burials from near or inside habitational area

Evidence for only two infant burials placed inside an urn was found, which were either near or inside the habitational area. Both the infants were below 3 years of age, and the burials were devoid of any burial goods. These burials have been associated with the group adopting the post-excarnation burial types. It is also noticed that the infants were placed in the urns and buried, while the adults and children were buried in pits.[171]

2.2.3.3 Solitary skeleton in a pit

A solitary example of a well-preserved skeleton in a complete articulated condition was also excavated from a pit burial, which was covered by a cairn heap.

The diameter of the pit was 1.47 m and hence the body was squeezed inside the pit, thus making the middle part sagging and the head towards the north at a risen position.[172] The orientation of the burial was from north to south. Evidence of three similar pits were also found in the same alignment to the above and packed with stones and boulders.

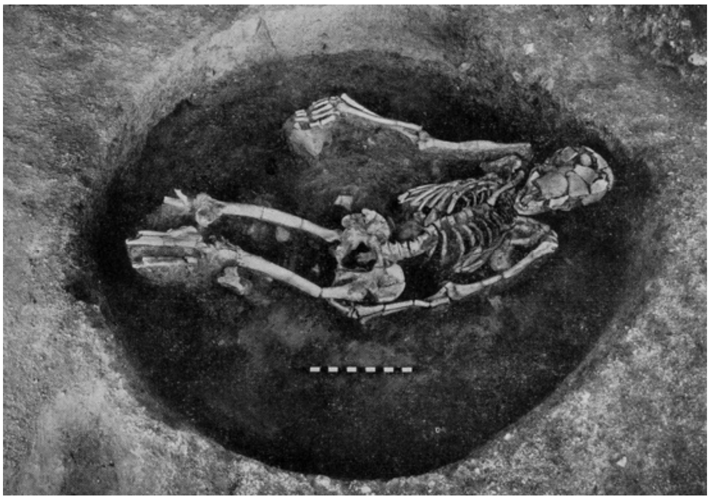


Fig. 2.61: Fully exposed human skeleton, Nagarjunakonda

2.2.4 Budihal

Budihal (*16^0 22' N; 76^0 23' E*) is located two km from the left bank of River Don, a tributary of River Krishna and 110 km southwest of Gulbarga in Karnataka.[173] The site was discovered by K. Paddayya in 1965. The site measures 400 m north – south and 300 m east – west. Four prominent ash-mound localities (Locality I to IV) are noticed here consisting of ash and habitation deposits.[174] A huge chert workshop on the western half of the site spread over an area of four hectares is also noticed here along with grinding grooves on sandstone blocks.[175] The cultural assemblage at Budihal consists of querns and rubber stones, polished stone axes, chert blades, pottery and animal bones.[176] The excavations carried out by the Deccan College in an area of 400 m^2 brought to light Neolithic dwellings, human burials, animal butchering floor, several functionally discrete units, etc. which are datable between 1900 BCE and 1400 BCE based on radiocarbon dates.[177] The human burials were encountered at three separate locations, viz., (i) upper ashmound area (area of garbage disposal), (ii) lower ashmound area (cattle-penning area) and (iii) habitation area. The burials from the ashmound area are fractional and interned in pits.[178] In total, two burials were found from the upper ashmound area and three from the lower ashmound area.

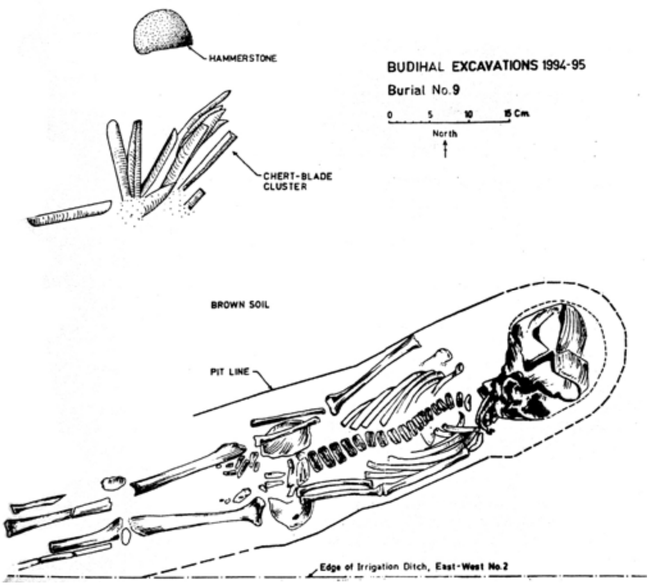


Fig. 2.62: Pit burial of a child, Budihal

Eleven burials were excavated from the habitation area, out of which ten consisted of child burials and one of an adult. Out of the ten child burials, three are pit burials and remaining seven are pot burials. A cluster of six child burials were found in a trench, all except one, consisted of pot burials. The only exception was found directly buried in a pit. The terrain is rocky and all the pits were dug in this terrain before internment of the burials. The pots are either single or double ones, often one kept within the other. The burial goods were few, except in certain rare occasions when chert blades and animal bones. One child burial is an interesting find, which consists of an extended and nearly complete pit burial, in an east – west orientation, with the head placed towards the east.[179] The hands of the child were placed one over the other on the abdomen and the burial goods consisted of a hammerstone, chert blade cluster, kept nearly 20 – 25 cm to the right of the body.[180]

2.2.5 T. Narasipur

T. Narasipur is located on the right bank of River Cauvery, near Mysore and was excavated by the Department of Archaeology, Government of Mysore during 1958-59, 1959-60 and 1961-62.[181]The excavation brought to light a two-fold cultural sequence represented by Period I – typical Neolithic pottery and Period II – Megalithic black-and-red ware.[182]The excavation carried out during the season 1961-62 brought to light the remains of a Neolithic burial. It was a pit burial and the skeleton placed in an east-west orientation with the head placed towards the east. The hands were placed across the body and resting on the abdomen. The burial goods consisted of two handmade cream coloured pots, a shallow bowl with channel

spout, and a pottery-stand with concave top known as neck-rest was found placed by the right side of the head.[183]

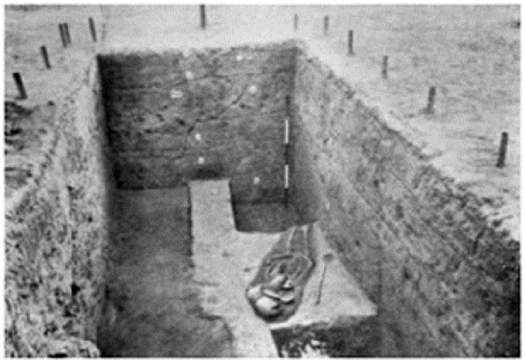


Fig. 2.63: Neolithic burial, T. Narasipur

2.2.6 Brahmagiri

Brahmagiri is situated in Chitradurga district of Karnataka, which is a huge granitic outcrop with several villages in the neighbourhood, of which Siddapura is famous for the presence of a minor rock edict of Asoka. This edict mentions to a locality known as 'Isila', which may be the ancient name of the nearby township. The archaeological potential of the site was brought to light by M.H. Krishna of the Mysore Archaeological Department in 1940, who excavated the site in 1942.[184] The site was excavated by R.E.M. Wheeler in 1947, who identifies three cultural phases here, viz., Period I – Neolithic, termed as Brahmagiri Stone Axe Culture; Period II – Megalithic Culture and Period III – Andhra Culture.[185] He places the Period I from early first millennium BCE to 2nd century BCE; Period II from *circa* 200 BCE to first century CE and Period III from the middle of first century CE to the third century.[186] The cultural assemblage of Period I consists of polished pointed-butt axes of basalt in association with numerous crude microliths of jasper, chert, agate, opal and rock-crystal; copper chisel; two small rods, one of copper and other of bronze.[187] The pottery was hand-made and of coarse grey fabric, and the common shape was simple globular vessels.[188]

Two types of burials have been reported from the excavation, viz., urn and extended burials. Urn burials were restricted to the numerous infant-burials, big and roughly made urns of uniform type; the infant was interred in a tightly folded position.[189] Two inhumation burials were also discovered, both extended, of which one child burial could be completely excavated. The child, aged 8 – 10 years, was placed in east – west orientation and the burial furniture consisted of two bowls

placed near the upper end of femurs, and a channel-spouted vessel placed above the skull.[190]

2.2.7 Piklihal

Piklihal (*15^0 58' 48" N; 76^0 26' 39" E*) is situated in district Raichur, Karnataka and nearly 5 km south of Mudgal Fort. The excavation at eight different sites brought to light broadly four broad cultural states, viz., Neolithic, Iron Age, Early Historic, and Medieval periods. The excavations brought to light four skeletal remains, of which two belonged to the Neolithic levels. One of the burials came from Site VII, from the layer 6, marked by a group of small stones, which was an extended burial in a shallow coffin-shaped pit.[191] The orientation of this burial seems to be north – south, as the head was roughly oriented towards the north, and inclined to the right.[192] The burial goods consisted of a spouted jar of grey ware placed to the left of the head and a tall vase of the same ware placed by the loins.[193] Another burial came from a shallow pit in Site VIII A, layer 4, which was placed on its back and the head towards the south, indicating the orientation of south – north.[194] The burial goods consist of five large chert blades to the right side of skull and two much worn out basalt axes at the feet.[195]

2.2.8 Utnur

Utnur (*16^0 0' 29" N; 77^0 38' 12" E*) is situated in Mehboodnagar district, Andhra Pradesh and nearly 40 km southeast of Raichur. The excavation was carried out at three different sites at Utnur, namely Site I, II and III.[196] The excavation brought to light five cultural periods namely, Neolithic, Iron Age, Early Historic, Early Medieval and Medieval periods. The solitary find of an infant burial came from layer 9 of Site I, indicated on the surface by a shallow depression and outside a post-hole line.[197] The evidence was very fragmentary and only the ribs and one humerus could be found and the skull was completely crushed.[198] The evidence indicated that the body was placed on its side in fetal position and from the absence of teeth, it was inferred that it was a newly born child.[199]

2.2.9 Pandu-rajar-dhibi

Pandu-rajar-dhibi or "mound of king Pandu" is located on the southern bank of River Ajay in district Burdwan in West Bengal and was excavated by Department of Archaeology, Government of West Bengal from 1961-62 to 1964-65.[200] The excavation revealed a four-fold sequence consisting of Periods I and II of the

Chalcolithic Period; Period III of Iron Age Period and Period IV of Early Historical Period.[201] Based on a single radiocarbon date from Period II, the Period I is assigned to 14th century BCE, Period II to 1200-1000 BCE and Period III up to the end of 700 BCE[202] The presence of a fractional burial from Period I is noticed, while twelve burials are noticed from Period II, which consists of three distinct categories, viz., (i) extended, (ii) fractional or secondary and (iii) urn burial.[203] The burial from Period I is of east – west orientation consisting of few potsherds and located within the habitation area.[204]



Fig. 2.64: Group of burials, Pandu-rajar-dhibi

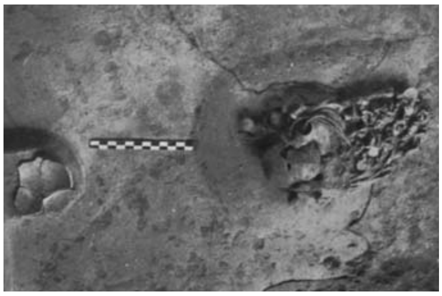


Fig. 2.65: Fractional burial, Period I, Pandu-rajar-dhibi

The burials of Period II are from a regular cemetery area. In general, the evidence indicates that the burials of Period II are also in an east – west orientation. The burial goods are reported from only two burials from Period II. One of the burials had black and red ware bowls, copper bangles, and fossil-wood microlithic scraper, while the other had tubular copper bead, barrel shaped agate bead, the latter sticking to the jaw-bone.[205]

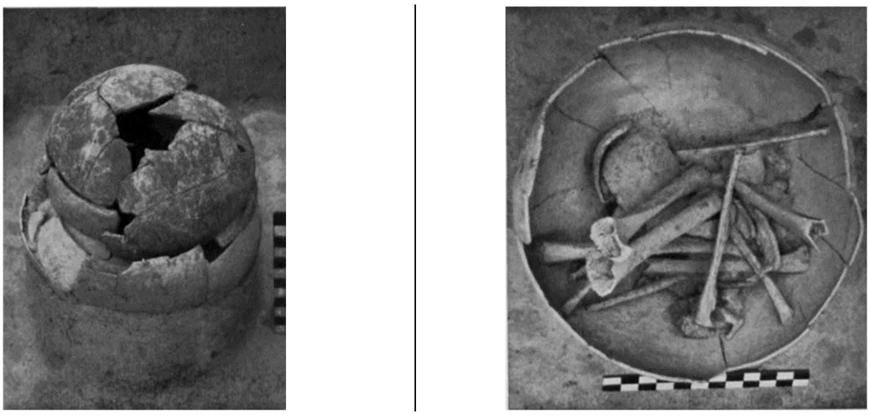


Fig. 2.66: Urn burial, Period II, Pandu-rajar-dhibi

2.2.10 Tekwada

The burial site of Tekwada(*20^0 35’ N; 75^0 3’ E*) is located on the left bank of River Girna, a tributary of River Tapti. The site is on the opposite bank of the habitation mound, namely Bahal. The ASI carried out a trial excavation at Bahal in

1952 and regular excavation in 1956-57.[206]The excavation at Bahal revealed a five-fold sequence, of which the Period I is of the Chalcolithic phase, Periods II and III of the Early Historic phase ending up to CE 100; Period IV datable from CE 1300 to 1700 and Period V of the Marathas during the 18th century CE. The excavation at Tekwada brought to light four burials of Period I, the Chalcolithic phase of Bahal. Of the four burials, three are urn burials and the remaining one is a pit burial. Of the three urn burials, one was found in a disturbed condition, while the remaining two consisted of large thick jar covered with a large bowl.[207] These two urns were believed to have contained bones of children. The burial goods consisted of bowls of black and red ware, some with graffiti; beads of paste, carnelian and steatite.[208]

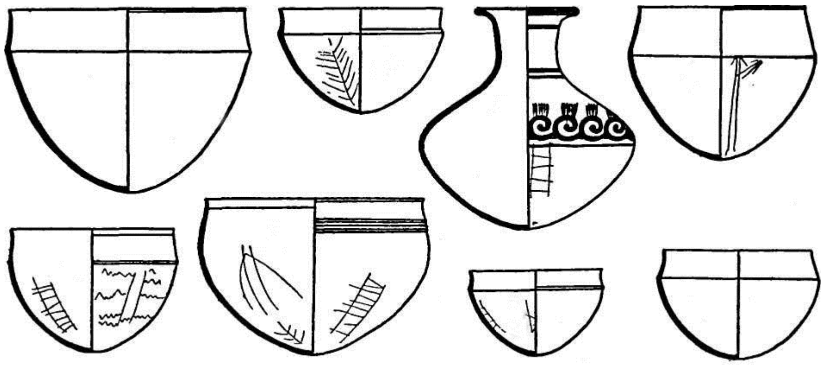


Fig. 2.67: Pottery remains from the burials, Tekwada

The fourth one is a pit burial, had an internment of an adult, 5’ 2” long, and laid in a north – south orientation. The burial goods consisted of pots of grey ware, red slipped ware and black and red ware showed clear affinity with the burials of Period IB of the chalcolithic phase of Bahal.[209]

2.2.11 Chandoli

Chandoli (*19^0 0’ 4” N; 74^0 0’ 5” E*) is located on the right bank of River Ghod in Maharashtra. The settlements at Chandoli consist of Chandoli Budruk and Chandoli Khurd, being on the left and right banks of River Ghod respectively. The chalcolithic site of Chandoli is from Chandoli Khurd, the extant size was only 200’ X 200’ due to extensive cultivation and also usage of the mound as a cemetery site by the modern villagers.[210] The habitation deposit at Chandoli ranged from 4’ 6” to 5’ 6” and the Chalcolithic people were the first settlers here.[211] The chalcolithic pottery consists of black-and-red ware, Malwa ware, cream slipped ware and Jorwe ware and the excavators place the site to the later phases of Navdatoli and a little

earlier than Nevasa.[212] The radiocarbon dates from Chandoli prescribes dated between 1400 – 1200 BCE to the Chalcolithic phase.

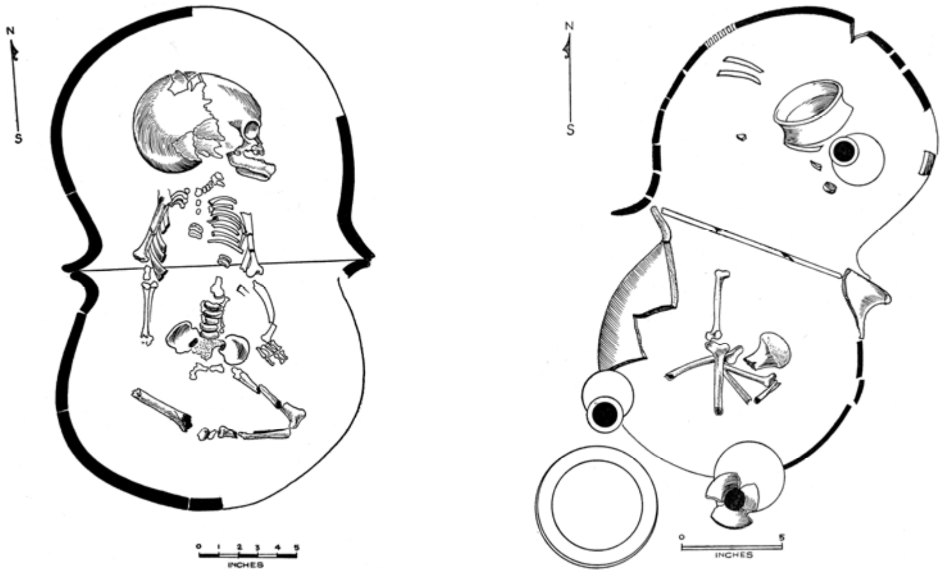


Fig. 2.68: Two urn burials, Chandoli

The excavation revealed a total of twenty-four burials, eleven belonging to the earliest level of occupation, ten to the middle level and three to the last. The general characteristics of the burials is that predominantly all were child burials except one; a majority of the burials were found from within the habitation, and laid on the floor of the house; all were urn burials and the orientation of them varied from north – south to a deflected orientation of northeast – southwest.[213] The burials are associated with very less offerings, and wherever found are restricted to funerary pottery and ornaments. Evidence for upright urn is also noticed at Chandoli, covered with a lid of Jorwe fabric. The excavator attributes several similarities in the mode of disposal of dead from Chandoli with Nevasa and concludes that there could have been a close cultural contact between these two sites.[214]

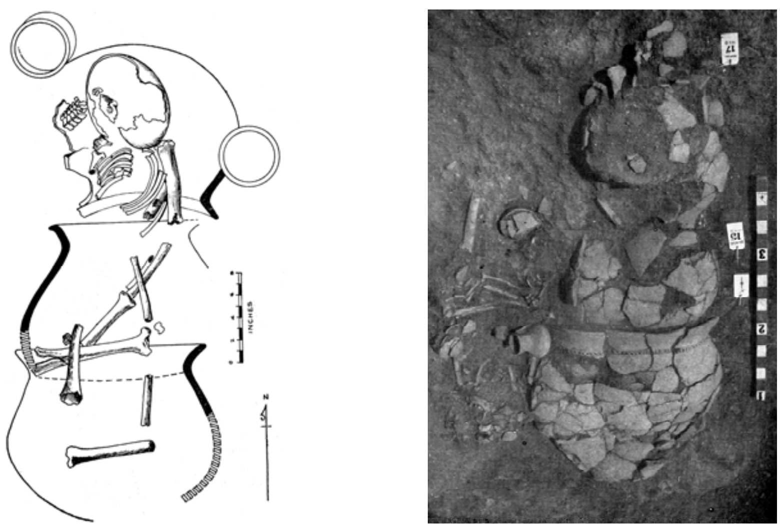


Fig. 2.69: Three urn burials, Chandoli

For burying the dead, two or three urns were used; the latter in one case, the urns placed mouth to mouth in case to two urns. In the case of three urns, two urns were placed mouth to mouth, while the bottom portion of lower urn is hollow to accommodate the mortal remains. The placement of the body inside the urns also indicate some planning as observed by the excavator, as the diametre of girth diminishes from north to south in the case of three urn burial.[215] The skull, jaw and teeth were invariably interred in the northern urn and in only one case, evidence of burning was noticed. In the only adult burial, the skull, neck and jaw portion were slightly charred, but the nature of the feature being intentional or accidental is not determined.[216] The adult burial is in a north – south orientation and found lying on the open floor. The interesting feature of the adult burial is that the lower portion of the body had been cut off, similar to the evidence at Nevasa. However, the significance of the custom could not be clearly understood. The age of the adult ranged between 20 and 25 years, and his height could have been between 5’ 6” and 5’ 2”.[217]

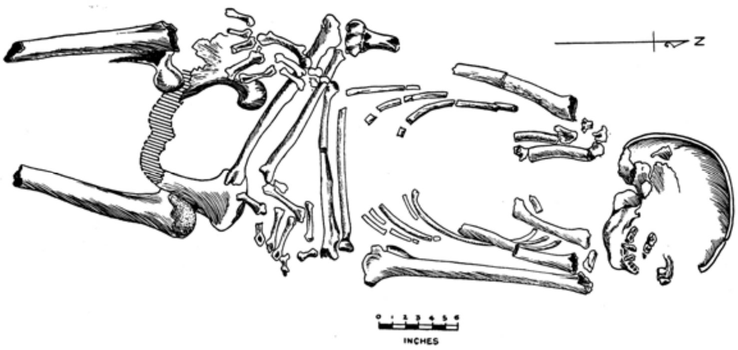


Fig. 2.70: Adult burial, Chandoli

Coming to the burial goods, only a few contained a rich assemblage of pots, both kept inside and outside the urns, the latter more predominant. The shapes of the pots noticed are spouted pots, carinated bowls, high-necked globular pots, convex-sided bowls and gourd-shaped pot. The other associated burial goods consist of barrel shaped copper beads strung in a thread of flax, silk or cotton, the evidence of which came from at least three child burials. This has been interpreted as a clear indicator of the economic affluence of the dead.[218]

2.2.12 Walki

Walki (*18^0 33’ 38” N; 74^0 18’ 42” E*) is located on the right bank of River Bhima near its confluence with River Mula in district Pune, Maharashtra. The site is at a distance of 32 km to the west of the famous Chalcolithic site, Inamgaon.[219] The

site is roughly 2 ha in area, the cultural deposit being only 60 cm and the excavators believe that this site was occupied seasonally by the people from Inamgaon.[220] The excavation was carried out for two field seasons in 1985-86 and 1986-87.[221] The excavations revealed that the site was occupied during Early Jorwe period during the later part of second millennium BCE and probably during the 12th century BCE.[222]



Fig. 2.71: A twin-urn burial, Walki

The excavation brought to light nearly 106 architectural features in various clusters belonging to Phase A and Phase B of the Jorwe Culture. Apart from the majority of circular houses, a few rectangular houses were also encountered. Mud platforms for storage purposes and circular hard and rammed platforms open to sky are other important features. Separate enclosures for keeping the cattle have also been identified. The excavators identify Walki as a satellite settlement of Inamgaon and it was a farmstead mainly for exploiting the fertile tract of land nearby.[223] The ceramic industry is represented by all the three characteristic varieties of Jorwe ware in association with red and grey wares. Fourteen burials were excavated, thirteen of which were child burials and only one that of an adult. All of them were found in the habitation area. The dead ones were buried in urns, either two or single as it was in vogue in the Chalcolithic cultures in Deccan. The urn burials are restricted to the child burials, and out of thirteen, nine were of twin-urn variety and four of single urn variety.[224] The adult burial is an extended burial type with the skeleton placed in supine position. The burial goods of the adult burial consisted of two carinated bowls and one spouted vessel, all of Jorwe fabric.[225] Here too, the portion below the skeleton was deliberately chopped off similar to examples from Inamgaon.[226] The urn burials usually consisted of two or one large grey ware urns for placing the dead

ones. The two urn burials were laid down in north – south orientation with the skull and upper portion of body in the northern urn and the lower portion in the southern urn, and the jars were placed mouth to mouth.[227] Some of the urn burials also contained burial goods in the form of carinated bowls of Jorwe fabric.

2.2.13 Daimabad

Daimabad (*19^0 30' 25" N; 74^0 41' 49" E*) is situated on the left bank of River Pravara, a tributary of River Godavari in Ahmednagar district of Maharashtra. The site was excavated by the ASI during the seasons 1958-59 and from 1974-75 to 1978-79. The excavation brought to light a five-fold sequence consisting of Phase I – belonging to the Savalda culture represented by wares with a thick slip of chocolate, light red and pink colours and painted with ochre and black coloured motifs, a blade industry and copper; burnished grey ware and thick coarse ware; Phase II – of Late Harappan times represented by sturdy red ware, a red ware with three incised signs of Harappan script, other ceramics include ribbed bichrome ware, deep red ware, burnished grey ware, thick coarse ware; Phase III – represented by the buff and cream ware culture, called as 'Daimabad ware', other associated ceramics were black painted red ware, black, black-and-grey, grey and corrugated wares with or without paintings, all black ware, burnished grey ware and thick coarse ware; Phase IV – represented by the typical black painted Malwa ware of medium to fine fabric, well fired and treated with a slip that turned red, orange or pink, other wares of this period include imitation of Daimabad ware, black-and-red ware, burnished grey ware and thick coarse ware and Phase V –represented by the typical Jorwe ware, other ceramics of this phase include that of deep red ware with waxy touch, reddish painted ware, knobbed ware and perforated ware.[228]

The chronology of different phases at Daimabad is Phase I – *circa* 2200-2000 BCE, Phase II – *circa* 2000-1800 BCE, Phase III – *circa* 1800-1600 BCE, Phase IV – *circa* 1600-1400 BCE and Phase V – *circa* 1400-1000 BCE.[229] The excavations at Daimabad brought to light a total of 75 burials, all discovered from the habitation area, even though the excavator delineates an area to the west of the habitation mound and in between the railway tract, a separate burial site of the Chalcolithic period based on the pottery finds of 'Tekwada class' and human bones from the surface.[230] The excavator also identifies a separate burial site of the Jorwe

period in the southeastern part of Sector III, but within the habitation area.[231] No burial remains of Phase I was found from the site. The **Phase II** yielded a solitary burial of extended inhumation type. This burial was elaborate, indicative that it may be of an important person, provided with specially made floors, mud-brick coffin and use of shroud of hemp like fibrous material.[232]

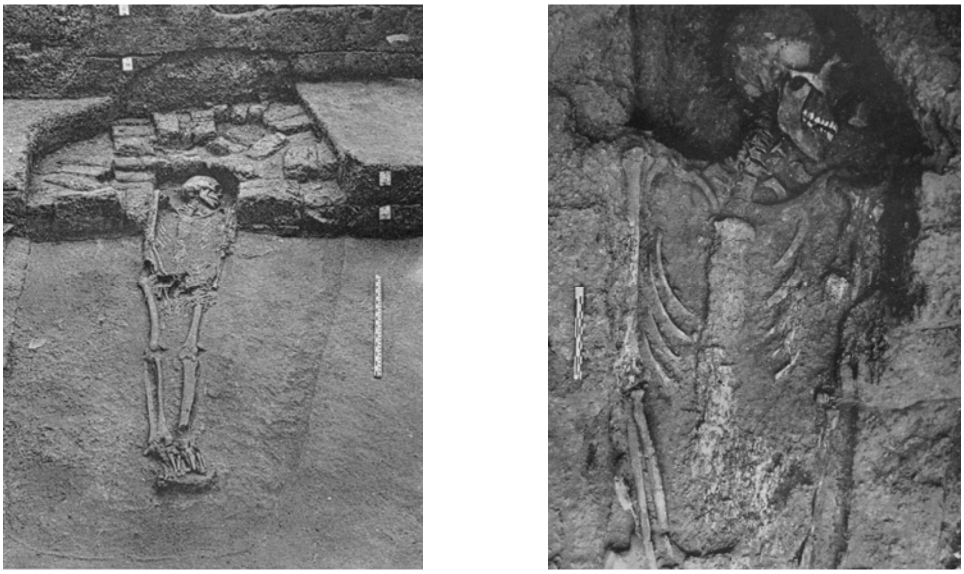


Fig. 2.72: Burial with mud-brick lined coffin, Phase-I, Daimabad

The **Phase III** revealed only three burials, each of a different type, viz., a pit-burial, a symbolic burial and a post-cremation pot-burial in clay matrix. The excavator observes that the last variety of embedding the burial urn in clay matrix continued well into the Malwa and Jorwe phases.[233] The **Phase IV, i.e. the Malwa phase** brought to light sixteen burials broadly classified into Group I and II, the first group again divided into types A and B. Type A contained the double-urn and single-urn varieties.[234]

There were sub-variants in the double-urn type of burials also. They were either placed mouth-to-mouth or mouth-in-mouth. The double-urn burials were either both of burnished grey ware or one of them was of burnished grey ware and the other of Malwa ware. Usually the northern urn was smaller in size and placed in the mouth of the southern one. All these double-urn burials were oriented north – south direction. The Malwa ware used in the last variety described above often contained painted motifs of dog on the neck and sun and peacock on the shoulder, which has been interpreted by the excavator with the conception of nature of death and legend of the dogs of Yama.[235]

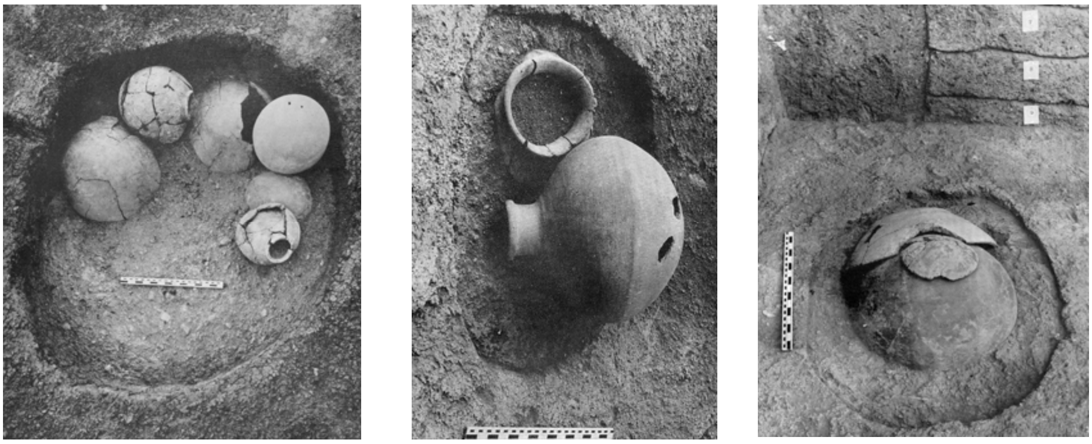


Fig. 2.73: Burials of Phase III, Daimabad

Type B of Group I burials of single-urn varieties, in which four sub-types were noticed, viz., (i) burial urn of Malwa ware placed vertically and mouth covered by burnished grey ware in an inverted position; (ii) burnished grey ware urn with squat body and grooved neck covered with a lid of same ware; (iii) burnished grey ware urn covered with a small bowl of same ware and placed horizontally in north – south orientation and (iv) a symbolic burial, the urn being a jar of purplish red ware with bulbous body and button base, placed vertically.[236] The Group II burials again have two sub-types, C and D, which were basically pit burials.

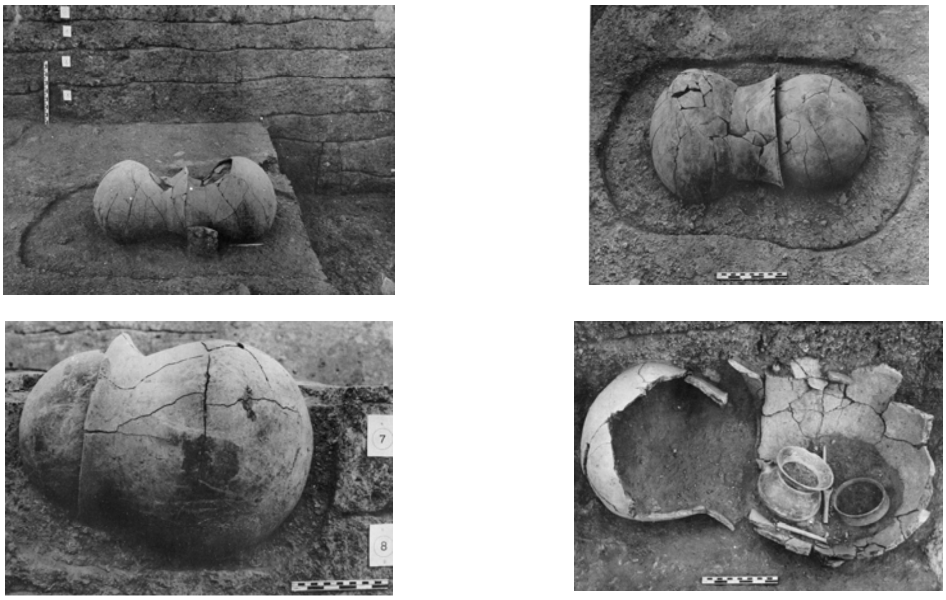


Fig. 2.74: Burials of double-urn variety, Phase IV, Daimabad

The Type C has three minor variants, mainly identified with the type of burial pottery used in the pits and their arrangement. They were either of Malwa ware bowls, two placed mouth to mouth in a north – south orientation and third placed vertically or three Malwa bowls placed horizontally in a row, their mouths facing south and in the last variety, all the bowls found in the burials were of burnished

grey ware.[237] The last two varieties are interesting in the fact that the pit surface was covered with twigs of fibrous plants. The Type D burials are symbolic pit burials, with no remains at all, but the pit marked by remains of fibrous plant twigs.[238]

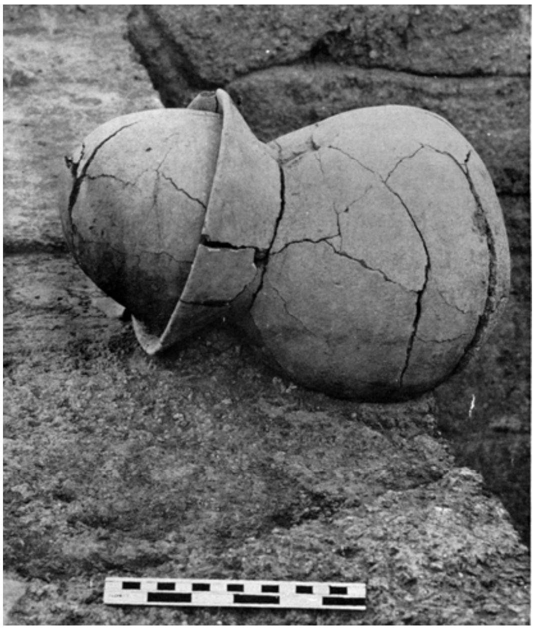


Fig. 2.75: Burials of single-urn variety, Phase IV, Daimabad

TYPOLOGY OF THE BURIAL TYPES OF PHASE IV, DAIMABAD

GROUP I		**GROUP II**	
Type A	**Type B**	**Type C**	**Type D**
Double-urns	**Single-urns**	**Burial pit with bowls**	**Symbolic burials**
Mouth-to-mouth Mouth-in-mouth (i) Both BGW (ii) One BGW and other Malwa ware	(i) Malwa ware urn covered with bowl of BGW (ii) BGW urn covered with lid of BGW (iii) BGW urn covered with BGW bowl (iv) Urn of purplish red ware, symbolic	(i) 3 bowls of Malwa ware; two mouth-to-mouth, third vertically placed (ii) 3 bowls of Malwa ware placed horizontally (iii) Bowls of BGW	No remains, and are symbolic burials Surface marked by twigs of fibrous plants
North-south oriented	North-south oriented	Twigs of fibrous plants noticed on surface of burial pits	

BGW – Burnished Grey Ware

The burials were also associated with bead finds, one burial yielding as much as 277 beads. A total of seven burials were discovered in the **overlap phase of Malwa and Jorwe levels**, which were classified into two major types, viz., Type A –

double-urn variety and Type B – single-urn variety.[239] The double-urn variety in turn had two sub-types, namely mouth-to-mouth and mouth-in-mouth. These burials were in a north – south orientation. The single-urn burials also have sub-types, in which the burial urn was covered with a lid in the first variety while it was uncovered in the second variety. The **Jorwe phase** yielded the most number of burials from Daimabad, a total of 48 were excavated from this phase. They have been placed into three distinct groups, viz., Group I, II and III – Group I – extended inhumation in a pit; Group II – extended inhumation in urns and Group III – urn-burial.[240] Only three burials of Group I were excavated, while one belonged to Group II and the remaining belonged to the Group III type. The excavator observes that the pit burials encountered during the preceding Daimabad and Malwa phases were not found in the Jorwe phase. The skeletons of Group I were partially preserved, only one had a complete specimen. Interestingly the feet below the ankle of one burial was chopped off. The solitary burial of Group II is of double urn variety, both of them being burnished grey ware faced mouth-to-mouth, the feet below the ankle chopped off.[241] Interestingly, the skull of the individual was placed in a Jorwe ware bowl, and remains of wild flowery plant were found below the bowl. The burial furniture usually consisted of pots like *lota*, bowl, etc., of Jorwe ware. Another interesting burial is the presence of black soot from inside of a bowl from Burial 53, which has been interpreted by the excavator that a lamp could have been lit in the burial-pit before it was closed.[242]

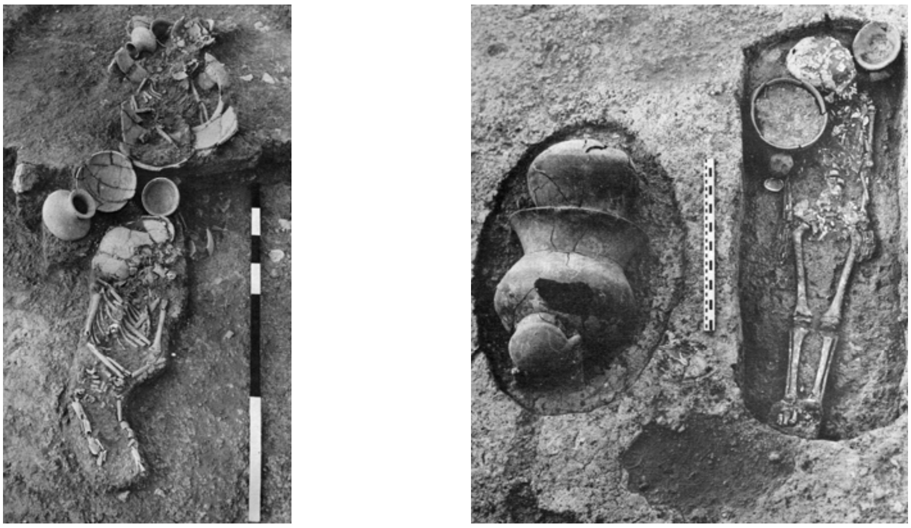


Fig. 2.76: Burials Phase V, Daimabad

The Group III type of Jorwe phase burials has three sub-types, viz., Type A – double-urn burial, Type B – single-urn burial and Type C – jar burial. Again, sub-

types were noticed in these major types of burials, which is tabulated and presented later. The burials were found in north – south orientation, although slight variations in orientation like northeast – southwest were also noticed.[243] As a normal practice, the fragments of skull bones were found in the northern urn and the southern urn yielded the extremities.

TYPOLOGY OF THE BURIAL TYPES OF PHASE V, DAIMABAD

GROUP I	**GROUP II**	**GROUP III**		
Extended inhumation in a pit	Extended inhumation in urns	Urn-burials		
		Type A	**Type B**	**Type C**
Feet below ankle chopped off	2 urns of BGW, placed mouth-to-mouth	Double-urns	Single-urns	Jar burial
	Feet below ankle chopped off	Mouth-to-mouth Mouth-in-mouth	Urns of BGW* only	
		North-south; NE-SW		
		Clay matrix Stone muller or stone chopper		
		Burial urns of Jorwe ware		
		Group burials		

** BGW – Burnished Grey Ware*

Instances of skull fragments placed separately on concave-sided carinated bowls were also noticed. One group burial was also excavated from this phase, which contained three child burials in a single burial pit and interpreted as sudden death in an epidemic.[244] The burial goods consisted of a copper mother goddess (Burial 72), stone ball (Burial 4), blade of chalcedony (Burial 35) and beads from Burials 7, 11, 12, 13 and 43, stone muller or stone chopper. The excavator observes that even though many traits of the preceding Malwa phase like placing of small subsidiary pots inside the urns continued into the Jorwe phase, the placing of other pots near the junction of two urns were more or less discontinued during the latter phase.[245] The excavator also observes that during the Jorwe phase, the southern urn was smaller in size and placed up to the neck of larger northern urn, which indicated a significant change when compared to the preceding Malwa phase, in which the reverse was observed.[246]

2.2.14 Tekkalakota

Tekkalakota (*15^0 31' 7" N; 76^0 52' E*) lies in the doab region of River Tungabhadra and River Hagari, in northern Karnataka and along the border with Andhra Pradesh. Another famous Neolithic-Chalcolithic site of Sanganakallu lies at a distance of 38 km as a crow flies in the south-southeast direction. The excavation was carried out by Nagaraja Rao during 1963-64[247], which revealed a two-fold sequence, named as Periods I and II. Period I belonged to the Neolithic-Chalcolithic culture which is characterised by ground stone axes, blades of chalcedony and chert while the pottery finds consisted of handmade ashy grey, burnished grey, plain and ochre painted buff wares.[248] Period II is marked by the paucity of ash grey and ochre painted wares; the burnished grey ware continues while the black-and-red ware makes it appearance, the latter exclusively found from the burials initially.[249]

Nagaraja Rao discusses seven burials excavated from Tekkalakota, out of which six burials consisting of three adults and three children belong to Period I and one burial to that of Period II.[250] It is pertinent to mention here that while the report on Tekkalakota mentions the cultural periods as 'phases' the brief report in Indian Archaeology – A Review mentions them as 'periods'. Hence, both these terms are interchangeable here in terms of Tekkalakota. The three adult burials of the Phase I are all fractional extended burials, one of the burials (Burial 1) contained bones of three individuals, of which two were represented by long bones and skulls, while the third one by a fragmentary skull only.[251] The orientation of the three individuals is also interesting, while two were placed in a south – north orientation and the fragmentary skull towards the northern end facing west.

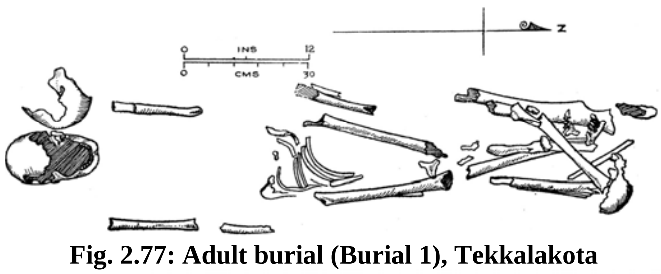


Fig. 2.77: Adult burial (Burial 1), Tekkalakota

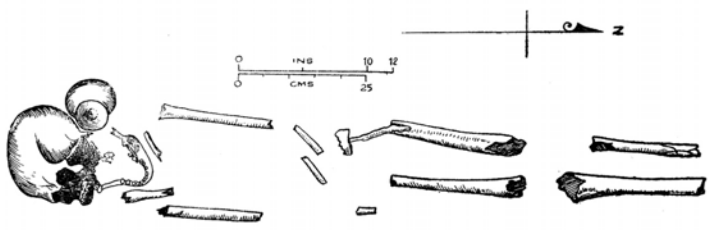


Fig. 2.78: Adult burial (Burial 7), Tekkalakota

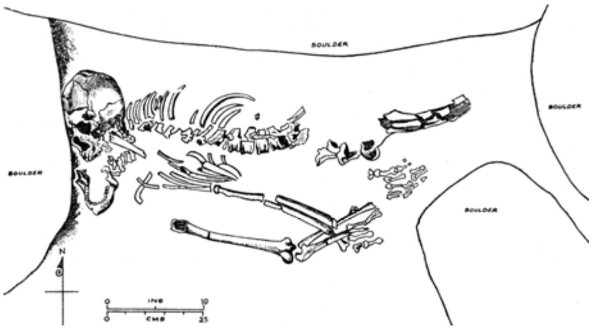


Fig. 2.79: Adult burial (Burial 5), Tekkalakota

The excavator, from the position of the placement of the skeletons interprets that it is either a family burial or a community burial.[252]Out of the other two extended burials, Burial 7 is in south – north orientation, while Burial 5 is in west – east orientation. The burial goods consist of pedestalled goblet of pale grey ware (Burial 7); two vessels, a large urn covered with a spouted bowl of pale grey ware (Burial 5). The excavator notes that granite boulders were placed over the pit after burying the dead.[253] The three child burials of Phase I were all found in the circular house site, one underneath the floor of the house, while other two outside the house towards the northern end.[254] One of the burials was an urn burial along with a fragment of a ground stone axe, while the urn itself covered with a burnished grey lid or shallow bowl, the edge painted with red ochre. One child burial was found in embryonic position and within the floor of the house, and the last one was represented by fragmentary bones and skull, and much information could not be gleaned. The burial of Phase II is an extended one in north – south orientation with the face towards east, identified as a female aged between 40 and 45 years.

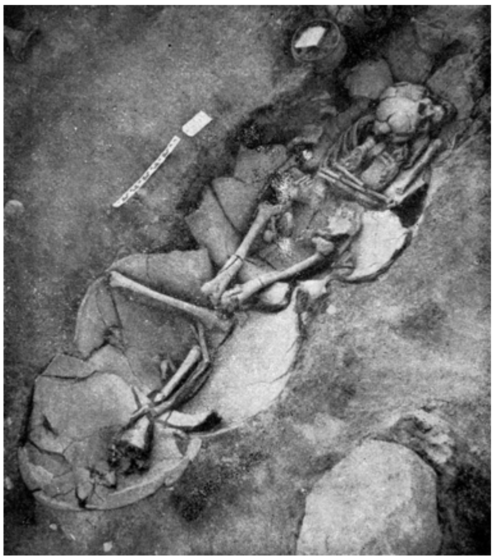


Fig. 2.80: Adult burial (Burial 5), Tekkalakota

The burial furniture was found placed to the south of the buried individual and consisted of bowls of various sizes in black-and-red ware.[255] A large-scale excavation conducted by Sankalia during 1963-64 brought to light eleven burials of Phase II, arranged in a row towards the northern side of the locality and oriented north – south.[256] A burial was of particular interest as it was interred in four pots.

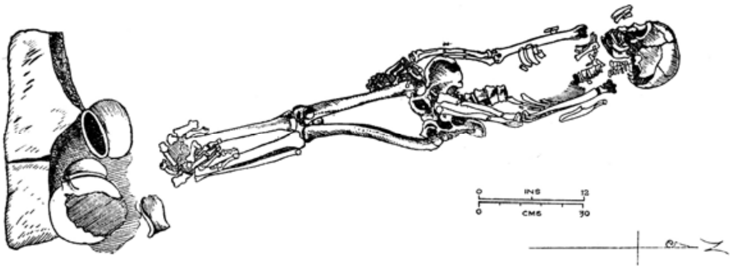


Fig. 2.81: Adult burial, Tekkalakota

2.2.15 Hallur

Hallur (*14^0 20' 30" N; 75^0 37' 16" E*), lies on the left bank of River Tungabhadra, a tributary of River Krishna, in the northern Karnataka. Hallur has a remote antiquity starting from the Palaeolithic time onwards and identified with Hallavuru, Vijayasamudra or Vijayapura of the historic times.[257] The Neolithic-Chalcolithic horizon of the site was first reported by Nagaraja Rao.[258] The mound at Hallur is locally known as 'Kote', meaning a fort in the local dialect, and measures approximately 500 X 270 m. The excavation at Hallur was carried out by Nagaraja Rao during 1964-65[259] which revealed two cultural periods, designated as Period I consisting of phases I and II, the former representing the Early Neolithic culture while the latter of the Neolithic-Chalcolithic Culture; Period II represents an overlap of Chalcolithic and Early Iron Age Cultures.[260] The radiocarbon dates from the site suggests a chronology of around 1700 BCE for Period I and about 1100 BCE for Period II. The Neolithic period is characterised by the presence of brown-and-black, pale grey and burnished grey wares, occasionally painted with red ochre.[261] The Neolithic-Chalcolithic phase is marked by the appearance of large number of blades of black chert and copper implements.[262] The Period II witnessed the sudden appearance of black-and-red ware with white coloured paintings and iron implements like arrow-head, spear head, etc.[263] The excavation brought to light the remains of three burials belonging to phase II of Period I of the Neolithic-Chalcolithic culture. The burials are in the form of two pot urns, similar to burials found from the Chalcolithic levels of Deccan. The burials were found well within

the habitation remains, while one burial was found under a well rammed floor of a house.[264] Only one burial revealed the presence of skeletal remains of a child.

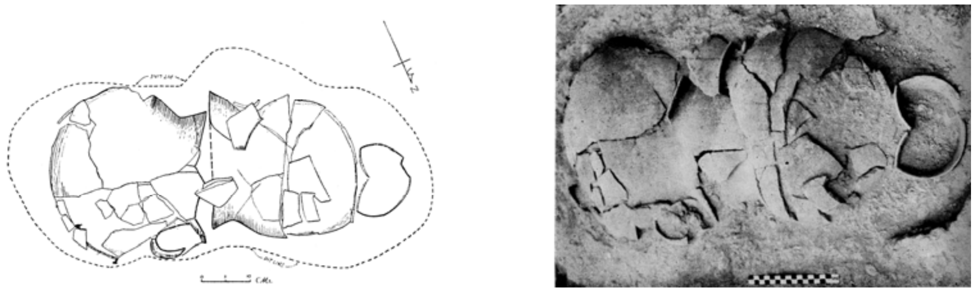


Fig. 2.82: Double-urn child burial, Hallur





Fig. 2.83: **Burial urns and grave goods (*left*); Fig. 2.84: Pottery head-rest, Hallur (*right*)**

The orientation is from east – west, and the urns were placed mouth to mouth, and of brown-and-black ware. The remains of teeth and skull were found in the eastern urn, while those of ribs and middle portion of coffin were from the western urn. The burial furniture consisted of burnished grey ware bowls, one at the western urn while another at the northern side of eastern urn.[265] Another small bowl with squat body was found within the western bowl, which was smeared with red ochre in the interior.[266]

2.2.16 Kaothe

Kaothe (*21^0 60' N; 74^0 17' E*), taluka Sakri, district Dhule in Maharashtra is a Chalcolithic site located on the left bank of River Kan, a tributary of Panjara, which forms part of the Tapi river system.[267] The site was discovered by S.R. Rao who associated with the Late Harappan settlement.[268] The site extends over an area of nearly 20 hectares. The site was excavated by Deccan College Post-Graduate and Research Institute during 1984-85. The excavation revealed a single cultural habitation at the site and placed in the time bracket of *circa* 2000 – 1800 BCE based on the associated Savalda ware. The nature of settlement consisted of several pit dwellings dug into the thick deposit of brownish silt. The pits were usually oval and

not too deep, and several pits are noticed inside a huge pit also. Separate pits for hearths, silos and poultry were also noticed. The material culture is marked by the absence of copper as well as stone tools. However, a large number of bone tools were found from the site, their types being points, scrapers, punches and tools with cutting edge. The evidences reveal that the settlers were probably pastoralists leading a seasonally settled life and occupied the site only during monsoon.[269] The excavation yielded a total of six human burial remains and all were found within the habitation area except one, which was found nearly 5 m from the site.[270] The orientation of the burials is north – south, with the head placed towards the south and the legs, towards the north. The head is placed slightly turned towards the east. The burials are devoid any funerary goods. Out of the total five burials, two were of adult and three of child burials.

2.2.17 Inamgaon

Inamgaon (*18⁰ 35' 55" N; 74⁰ 32' 26" E*) is located on the right bank of River Ghod, nearly 80 km east of Pune. Inamgaon is an extensive site, extending to nearly 65 acres, and due to erosions, it had been dissected into five prominent mounds of varying dimensions.[271] The Deccan College Post-Graduate and Research Institute carried out excavations at Inamgaon from 1968 to 1981-82. The excavation revealed a three period cultural deposit here consisting of Period I – Malwa (*circa* 1600 – 1400 BC), Period II – Early Jorwe (*circa* 1400 – 1000 BC) and Period III – Late Jorwe (*circa* 1000 – 700 BC). The early and late Jorwe phases have been broadly delineated based on the house plans, while the early phase have rectangular houses, the late phase houses are circular on plan.

The evidence for disposal of dead at Inamgaon is primarily from the Jorwe phase only and consisted of two types, namely (i) urn burial and (ii) extended supine burial.[272] The twin or single urn burial mode was employed for burying the infants and juveniles while the adolescents and adults were interred in extended supine position. The excavation yielded a total of 266 burials during the course of twelve seasons of excavation. The period-wise distribution of burials is Malwa – 23, Early Jorwe – 72 and Late Jorwe – 171. However, many of the burials are symbolic ones and no human bones found present.[273]The total number of individuals represented by human bones numbered to 176.[274] The burials were generally found from within the habitation area. The very less adult burials are attributed to various reasons like poor

preservation, location of adult cemetery area outside the habitation area, and practice of other funerary customs like cremation.[275] The period-wise distribution of the individuals reveals that 16 belong to Malwa Phase; 51 to Early Jorwe and 109 to Late Jorwe Phase.[276] Of these, all the individuals from the Malwa Phase are infants and juveniles, while out of 51 from the Early Jorwe Phase, 42 are infants and juveniles and 9 are adolescents and adults.[277] Out of the 109 individuals assigned to Late Jorwe Phase, 85 are infants and juveniles and 24 are adolescents and adults.[278] The more number of infants and immature individuals has been attributed to the preservation condition of the burials, as the infants and juveniles were buried in urns, both single and twin, which presented a better preservation, while the simple burials for the adults led to destructive pressure of superincumbent earth.[279]

2.2.17.1 Burials of Malwa Period, Inamgaon

The burials of the Malwa period exhibited both the single-urn and double-urn varieties and in total 22 burials were excavated, out of which as mentioned above, 16 skeletal remains could be found. Out of the 22 burials, 15 belonged to the double-urn variety and seven were of single-urn variety.[280] The burial generally consisted of a red / grey ware urn placed vertically or horizontally. The orientation is from north – south as noticed from one or two examples.





Fig. 2.85: Burials of Malwa Period, Inamgaon

The double-urn variety exhibited variations in the type of urns used as receptacle. The urns either was of both of red / grey ware or burnished grey ware or one urn of red / grey and other of Malwa ware or painted in Malwa fabric.[281] The skull fragments were generally placed in the northern urn and the extremities in the southern urn, the orientation being north – south. One triple-urn burial was also excavated with the outermost pot of red ware, inside which two jars were accommodated, one of red ware and other of red / grey ware.[282] The burial goods

consisted of funerary vessels of different varieties. They were either of burnished grey ware, grey ware or Malwa ware. One burial (Burial 115) yielded both vessels of Malwa and Jorwe fabric.[283]

2.2.17.2 Burials of Early Jorwe Period, Inamgaon

The excavations brought to light a total of 72 burials from the Early Jorwe period, of which 47 were of child burials and 25 of adult burials.[284] The child burials belonged to double-urn (40 burials) and single-urn (5 burials) and the adult burials were all extended ones. The orientation of the urn burials varied from north – south, northeast – southwest to northwest – southeast. The burials were generally found within the habitation area and beneath the floors. The skull fragments were generally placed in the northern urn while the extremities in the southern urn, but evidence for reverse cases was also noticed. In one child burial, the body was kept in the urn on its right side in a crouching position with the legs folded up.[285] The excavator notes that this has parallels in the Mesolithic context of Langhnaj.[286] The urns used for the receptacle were generally of red / grey ware. The adult burials at Inamgaon start to appear from the Early Jorwe period only and absent during the Malwa period. An interesting and curious aspect of these adult burials is that the feet below the ankle was deliberately chopped off before the burial took place.[287] This practice has been interpreted by the excavator that this act was deliberately done by the people to prevent the dead from running away and turning into a ghost.[288] The burials were laid generally in a north – south orientation in rectangular or oval pits. The burial furniture consisted of vessels of Jorwe ware. In one instance, six painted Jorwe vessels were found, a carinated bowl and miniature handi placed near the mouth, one spouted and a small high-necked jar near the left leg and a short-necked jar covered with a cup near the right knee of a skeleton.



Fig. 2.86: Burials of Early Jorwe Period, Inamgaon

The extended burials also showed certain unique varieties. One burial was in east – west orientation, with the head towards the east; two burials were found in a crouching position and also a group burial of three children was excavated. A

symbolic burial was also found in which the receptacle was a one-and-half four legged urn. An adult burial was surrounded by post-holes indicating some sort of canopy above the dead body.[289] The excavator also observes that some of the burials were either wrapped in grass or grass was spread on the floor of the pit.

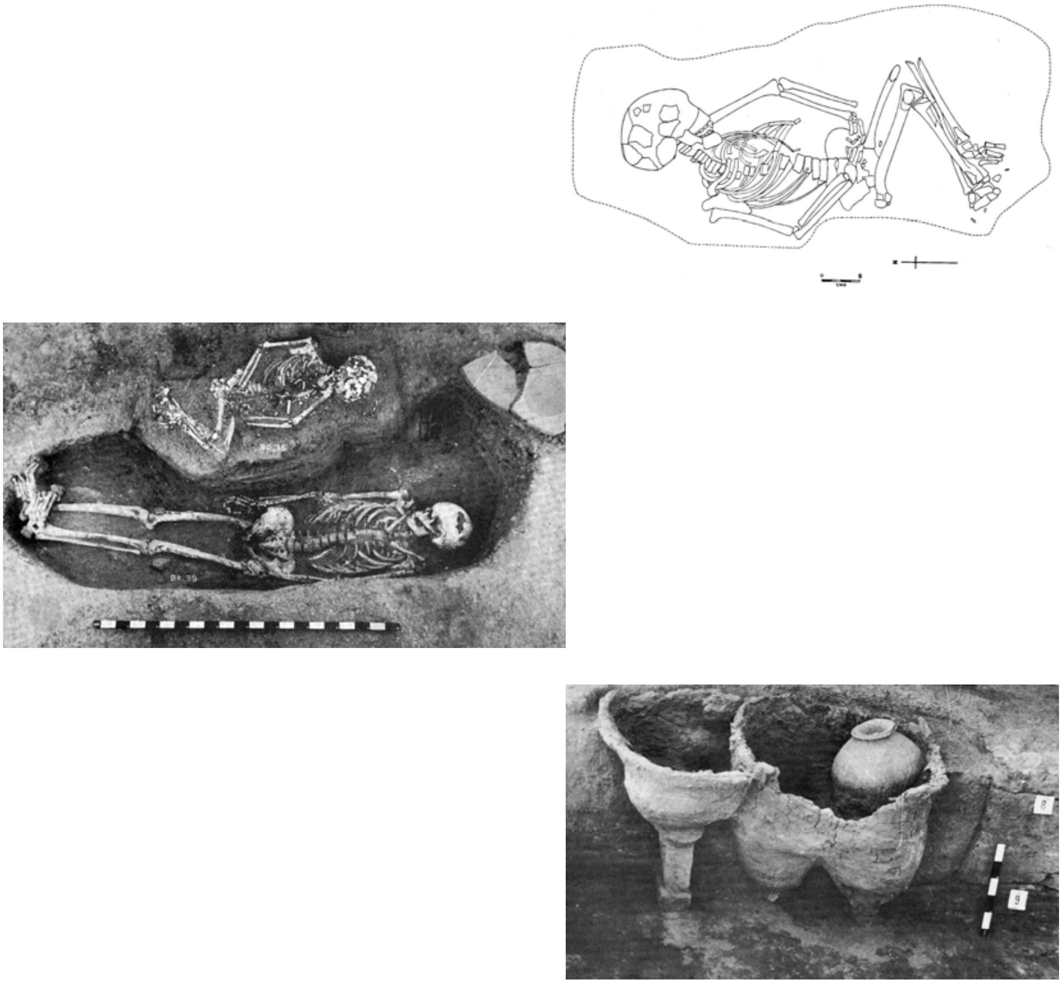


Fig. 2.87: Burials of early Jorwe Period, Inamgaon

2.2.17.3 Burials of Late Jorwe Period, Inamgaon

The Late Jorwe period yielded a total of 171 burial remains, of which 107 were child burials and 64 adult burials. Among the child burials, 13 were of single-urn, 91 of double-urn and 3 or triple-urn types.[290]As from other sites of the same period, the urn burials were largely restricted to the child burials. The orientation of the urn burials varied from north – south, northwest – southeast and northeast – southwest, with the remains of the skull usually found in the northern urn in the case of double urn burials. The urns were of red / grey ware, late Jorwe ware and painted pots of late Jorwe ware. In the case of triple urns, the northern one was the largest, the central one comparatively smaller and the southernmost one smallest.[291] As a general practice, the northern urn was the largest and southern one smaller in the

case of double and triple urns. In the case of single-urn burials, the urns were either placed in a vertical or horizontal position. Only one burial yielded a painted bowl as burial urn.[292] Another interesting feature of the single urn burials was that only the skull fragments were kept in the urn and the remaining bone fragments were kept outside the urn. The grave goods from the single urn burials were pottery consisting of black-and-red ware bowls, Late Jorwe globular pot.

In the case of double-urn burials, as mentioned above, the northern one was larger than the southern urn. However, some exceptions were also noticed in which the southern urn was larger than the northern urn. There were instances in which the burial urns were deliberately broken to accommodate the skeletal remains, if the body of the individual was found to be larger than the urns (Burial 9). The burial goods consisted of spouted vessels, bowls and globular pots of late Jorwe period; pots of black-and-red ware and coarse red ware. These burial goods were often placed outside the urns, at the junction of the two urns and near the southern urn. The jewellery and other grave goods found from the burials include necklace of long barrel beads of copper and jasper alternatively (Burial 55); necklace of spherical copper beads and marine shells (Burial 176), the marine shells indicating trade with coastal areas; carnelian bead (Burial 92); fine antler punch (Burial 9).[293]

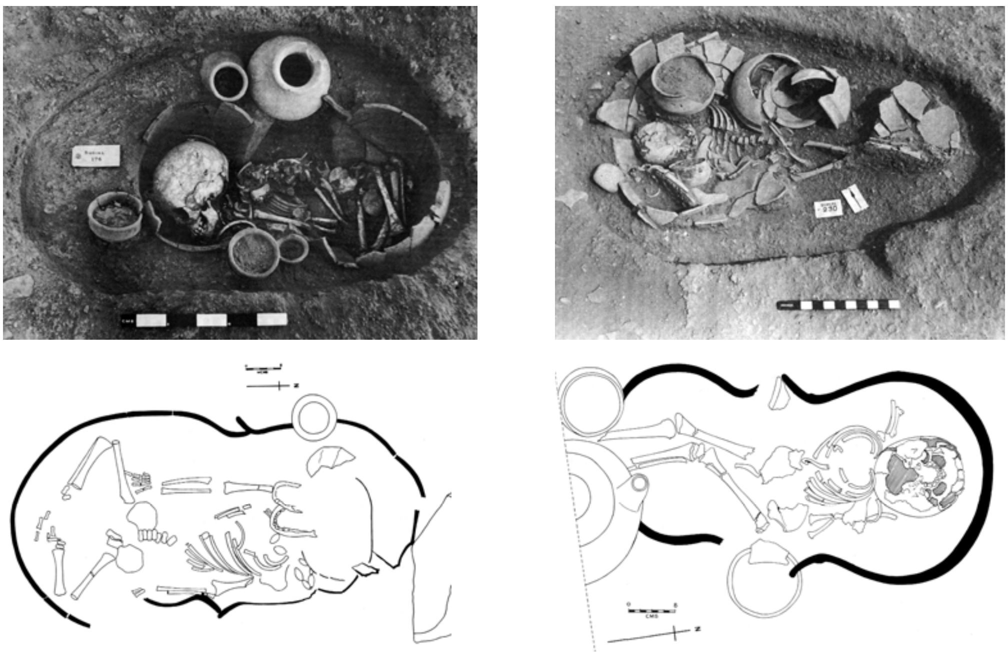


Fig. 2.88: Urn burials of late Jorwe Period, Inamgaon

Only three burials of the triple-urn variety were excavated of which two were more or less complete and the third one considerably destroyed. As mentioned

above, the triple urn burials contained three urns, the largest at the northern end, while the southern urns were smaller than the northern ones. The central urn was deliberately broken to accommodate the southernmost urn. The burial goods were placed outside the urn, and in one burial (Burial 163) it consisted of seven vessels, viz., a late Jorwe bowl and remaining of black-and-red ware.[294] The introduction of the third urn in the burials has been interpreted by the excavator that the people could not accommodate the skeletal remains in double-urns and hence the necessity of a third urn arose.[295] The extended burials were generally oriented in north – south direction; although examples of east – west (Burial 175), northeast – southwest (Burial 240) were also found. The burials were found within the habitation area and below the house floors. Some of the burials showed evidence of placement of grass below the body and in one case, the body as well as the funerary goods was covered with grass (Burials 200, 184).[296] The excavator observes that the *Kolis* (fishermen) of Inamgaon bury their dead wrapped with green leaves even today. Instance of chopping of legs below the knee was also observed (Burial 143). One burial yielded evidence of treatment of all funerary pots and body with a coat of lime (Burial 15).

The funerary goods consisted of pots and bowls of Late Jorwe period, black-and-red ware, coarse red ware, etc. The arrangement of the pots does not follow any specific rules as variations are observed in different burials. However, as a general rule funerary pots of either late Jorwe ware or black-and-red ware were placed near the head, consisting of either bowls or pots. In one case (Burial 19), two black-and-red ware bowls were found placed near the head, two small lotas of late Jorwe period near the left hand and a spouted jar near the right hand. In another instance (Burial 15) eight funerary goods were found, two basins of red / grey ware placed near the head, two more of same ware near the knee of legs, spouted grey ware *lotas* near the mid portion of the body. The interesting feature here was the presence of charred bones in one of the basins, indicating internment of food along with the dead.[297] The other burial goods found from the burials include copper anklet (Burial 46), curved copper object having round ends and a sharp inner edge (resembling a harvester, from Burial 25), hammer-stone (Burial 44a), a tone, a ball, two hammer-stones and antler (Burial 192), disc bead (Burial 245).

Multiple skeletons from the burials of this period were also brought to light and a total six were excavated. Here also the lower extremities were missing as was

the case from other burials, which was a major custom among the Deccan Chalcolithic burials. One of the burials (Burial 146) yielded the remains of a man and woman, the body of latter placed above the former. The female skull contained two deep scars on the left forehead that might have been caused by a sharp instrument.[298]

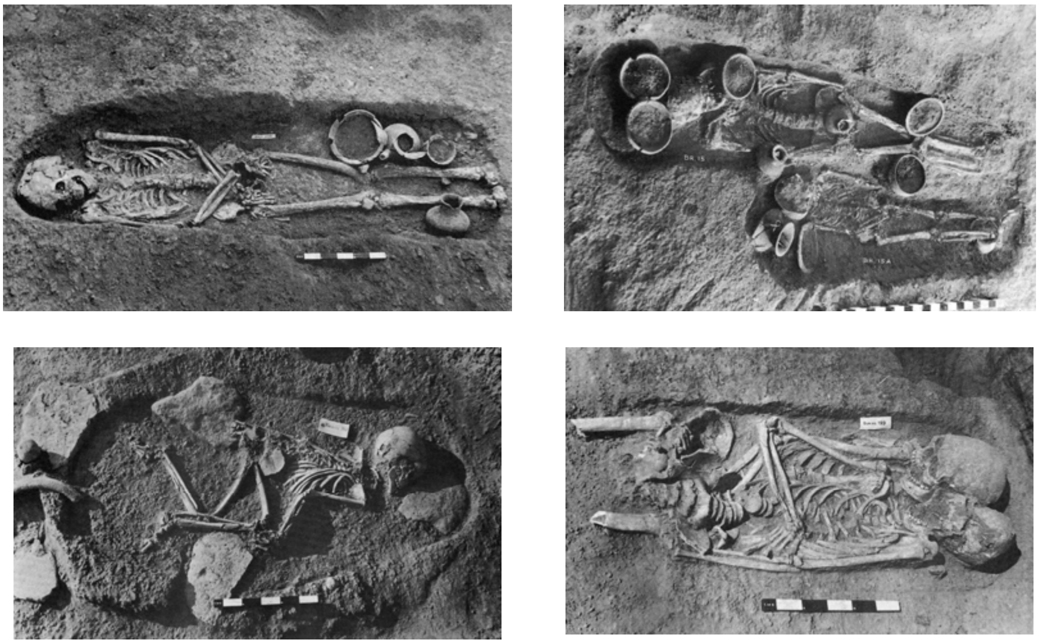


Fig. 2.89: Extended burials of late Jorwe Period, Inamgaon

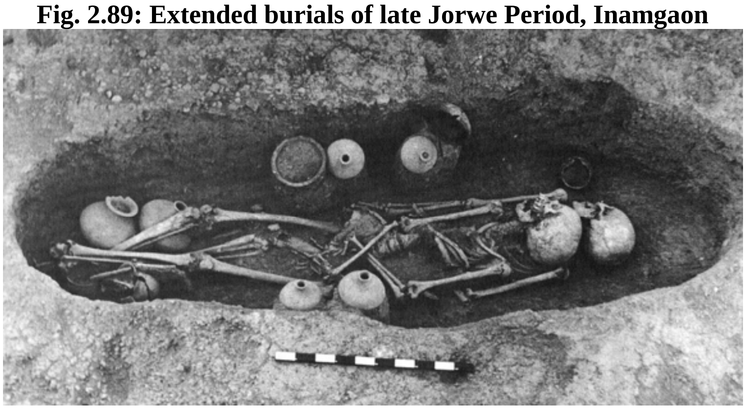


Fig. 2.90: Extended burial of late Jorwe Period, Inamgaon

The funerary goods consisted of twelve pots out of which five were of black-and-red ware, five small vessels of late Jorwe ware and a Late Jorwe spouted vessel. Another burial (Burial 208) contained remains of two adults, many of the important bones missing. The excavator interprets that these persons could have died elsewhere and their bones collected and buried here.[299] Examples of symbolic burials were also unearthed from late Jorwe levels at Inamgaon and a total of 13 of them were excavated. While some of the burials did not contain any human remains at all and represented only by the presence of red / grey ware pottery vessels; two burials (Burials 157 and 28) contained traces of some human bones.

2.2.18 Nevasa

Nevasa (*19^0 32' N; 74^0 56' E*) is situated on the south bank of River Pravara in district Ahmednagar. The mound at Nevasa is locally known as 'Lad-Mod', which rises to a height of nearly 70' from the surrounding plains.[300] The excavation at Nevasa was conducted by the Deccan College under H.D. Sankalia and later by S.B. Deo during the field seasons 1954-55, 1955-56, 1959-60 and 1960-61. The excavation brought to light six cultural periods, viz., Period I – Early Palaeolithic; Period II – Middle Palaeolithic; Period III – Chalcolithic (1500-1000 BCE); Period IV – Early Historical (second century BCE to beginning of Christian era); Period V – Indo-Roman (first three centuries CE) and Period VI – Muslim-Maratha (fifteenth to eighteenth centuries CE).[301]

The excavation brought to light a little over 100 burials of the Chalcolithic period (Period III). The excavators describe that different kinds of burial system were in vogue during this period. These burials could be broadly classified into adult and child burials. The adult burials were mostly buried in fully extended or slightly flexed manner in shallow pits lined with lime or in large jars placed horizontally in pits.[302] The lower portion of the legs of adults was often found missing. The child burials were found in at least four varieties, viz., *"….(i) in single urns covered by bowls, (ii) in double urns placed horizontally face to face, (iii) in double urns placed vertically face to face and (iv) in three urns, of which two were placed horizontally face to face and the third covered the broken bottom of one of the other two."*[303] A large number of child burials were encountered from the burials. Many of the child burials were often found beneath the floor of the houses, a typical pattern observed in the Deccan Chalcolithic cultures. The burials were generally found in a north – south orientation, while examples of north-northeast to south-southwest orientations were also found. The burial furniture consisted of several kinds of pots, like small or big bowls, spouted vessels with flaring rims, and vessels of several other shapes, characteristically painted in black over a fine red slipped surface.[304] The painted designs on the pottery include those of deer and other animals, graffiti and impressed designs including that of human figures, *pipal* design and basket patterns.[305] It is interesting to note that every burial has a different graffito mark,[306] which may be quite important in reconstructing the social pattern of the local population.

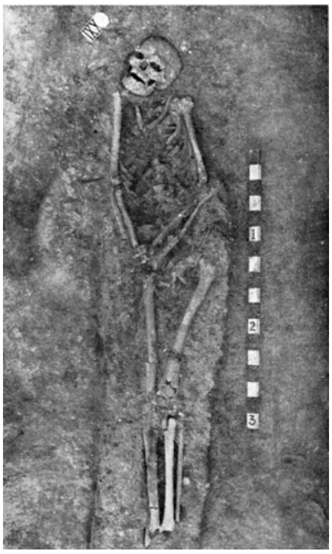



Fig. 2.91: Extended adult burials, Nevasa

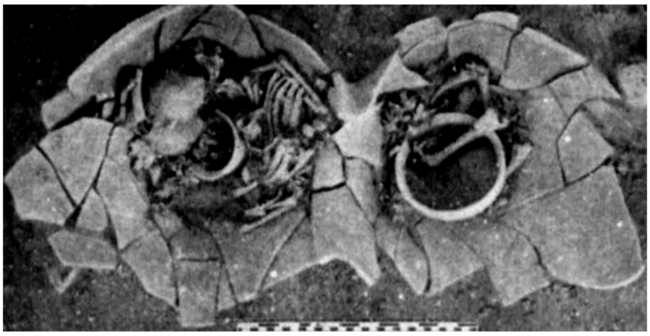


Fig. 2.92: Urn burial, Nevasa



Fig. 2.93: Burial urns of female adult, Nevasa

The burial goods also consisted of beads of materials like shell, agate, carnelian and copper.[307] Instances of one child burial having a copper bangle around the leg bone; necklace of seventeen barrel shaped copper beads strung in a thread and worn around the neck indicate the social status of the buried persons.

2.2.19 Songaon

Songaon (*18⁰ 41' 4" N; 74⁰ 39' 18" E*) is located nearly 9.6 km west of Baramati, a district headquarters and 94 km from Pune in a southeasterly direction near the confluence of two rivers, namely Nira and Karha. The site was discovered in 1965 by one Inamdar of the State Department of Archaeology.[308] There are two

mounds, which are known locally as *Gavalyachi Tekdi* (Mounds of the milkmen), the bigger one known as thorali (elder), while the smaller one is dhakli (smaller or younger).[309] A small-scale excavation was carried out by the Deccan College in collaboration with the State Department of Archaeology, Maharashtra for three weeks in 1965. The excavation brought to light three cultural levels, designated as Periods I, II and III. Period I was devoid of any Malwa or Jorwe pottery and consist of coarse red ware and blotchy grey ware. Period II was sub-divided into two phases, Period II a and Period II b, the first one having the presence of Malwa, Jorwe and grey wares, while the second one consisted of less Malwa ware and more of Jorwe ware. Period III consisted of black-and-red ware, red slipped ware and degenerated Jorwe ware.

A time bracket starting from 1500 – 1000 BCE has been proposed for the chronology of the site.[310] The other material culture forms consist of lime floorings of Period I and mud-walled houses of Period II a and II b. The excavation also brought to light the presence of four burials, all those of infants from Period II. Two of them were placed in a northwest – southeast orientation, while two others were in north – south alignment. All the burials are urn burials, single, double and triple ones. No adult burials were encountered and the excavators observe that the presence of charred bones is significant as those of Nevasa and Chandoli.[311] It is also noticed that all the burials were found under the floor of the habitation area, which is similar from other Deccan Chalcolithic sites.[312] The burial goods generally consisted of pottery, mostly Jorwe ware, and in a case (Burial 3), 51 biconical beads of shell were found.

2.2.20 Tuljapur Garhi

Tuljapur Garhi (*21^{0} 10' N; 77^{0} 35' E*) is located on the right bank of River Purna, a tributary of River Tapti and nearly 240 km west of Nagpur.[313] The ASI carried out large-scale excavation and brought to light a single cultural habitation consisting of two phases mainly marked by the distinct pottery type, viz., Phase A – represented by Malwa ware and Phase B – represented by Jorwe ware. A child burial was excavated from Phase B in a small oval shallow pit.[314] It has been described as a burial in secondary context with the longer bones and skull placed in east – west orientation.[315] The burial furniture consisted of a black-and-red ware

bowl and 12 carnelian beads. Walimbe, based on the skeletal and dental analysis proposes an age of 20 to 24 months to this infant at the time of death and due to very young age, sex determination was not possible.[316]



Fig. 2.94: Child burial, Tuljapur Garhi

2.2.21 Sonpur

Sonpur is situated nearly 5 km west of Bela railway station, in district Gaya. The site was excavated by the K.P. Jayaswal Research Institute under Vijayakant Mishra during 1956-57[317] and B.S. Verma during 1959-60 and 1960-61.[318] Mishra reports five successive cultural periods here namely Period I – represented by black-and-red Ware; Period II – continuation of black-and-red ware and appearance of Northern Black Polished Ware towards the end; Period III – full representation of NBPW; Period IV – degenerated NBPW; Period V – red ware of early centuries of Christian era.[319]



Fig. 2.95: Post-cremation burial, Sonpur

Mishra proposed a chronological framework of pre-600 BCE for Periods I and II and places Period V to around 50 BCE.[320] Verma, based on the excavations here reports a three-fold cultural sequence, sub-dividing the Period I into two sub-phases. The cultural sequence as reported by Verma is Period I A – presence of coarse black-and-red ware, copper wire; Period I B – fine black-and-red ware and black ware; Period II – introduction of NBPW in golden and silvery shades; Period III – absence of NBPW and black-and-red wares, common pottery included of red ware of coarse and medium fabric with the presence of sprinklers at the upper levels.[321] Verma places the beginning of habitation at Sonpur to first quarter of first millennium BCE and the end towards the early centuries of Christian era.[322] Verma reports the discovery of some urn and post-cremation burials from the site during 1959-60. The urns were fairly larger in size in reddish-buff colour containing some bones inside.[323] The post-cremation burials were termed as important ones, and *"…..each a circular pit, about 6 ft in diameter, and 2 ½ ft in depth, full of ash, bone pieces and common types of pottery in coarse red, black and black-and-red wares."*[324] The presence of animal and bird bones was also reported to be present in the burials.

2.2.22 Balathal

Balathal (*24^0 42' 37" N; 73^0 58' 35" E*) is situated in district Udaipur, Rajasthan which was excavated by Deccan College and Rajasthan Vidyapeeth, Udaipur for seven field seasons from 1994 – 2000.[325] The site spreads over an area of two hectares with a cultural deposit of 7.5 m. The excavation brought to light two cultural periods, namely Chalcolithic and Early Historic. The Chalcolithic phase is further sub-divided into Phase A and Phase B. Phase A is characterised by thick red slipped ware, burnished and unburnished grey wares and black-and-red ware, mud and mud-brick structures, copper and lithic technology.[326]

Phase B is characterised by the massive fortified enclosure in the centre of the settlement,[327] good quality of pottery, appearance of deluxe wares like tan and thin red ware, monumental architecture, comparatively rich material culture.[328] The Chalcolithic phase at Balathal has been dated from *circa* 3000 – 1500 BCE based on stratigraphy and radiocarbon dates, within which Phase A is placed between *circa* 3000 and 2400 BCE while Phase B is dated to *circa* 2400 – 1500 BCE.

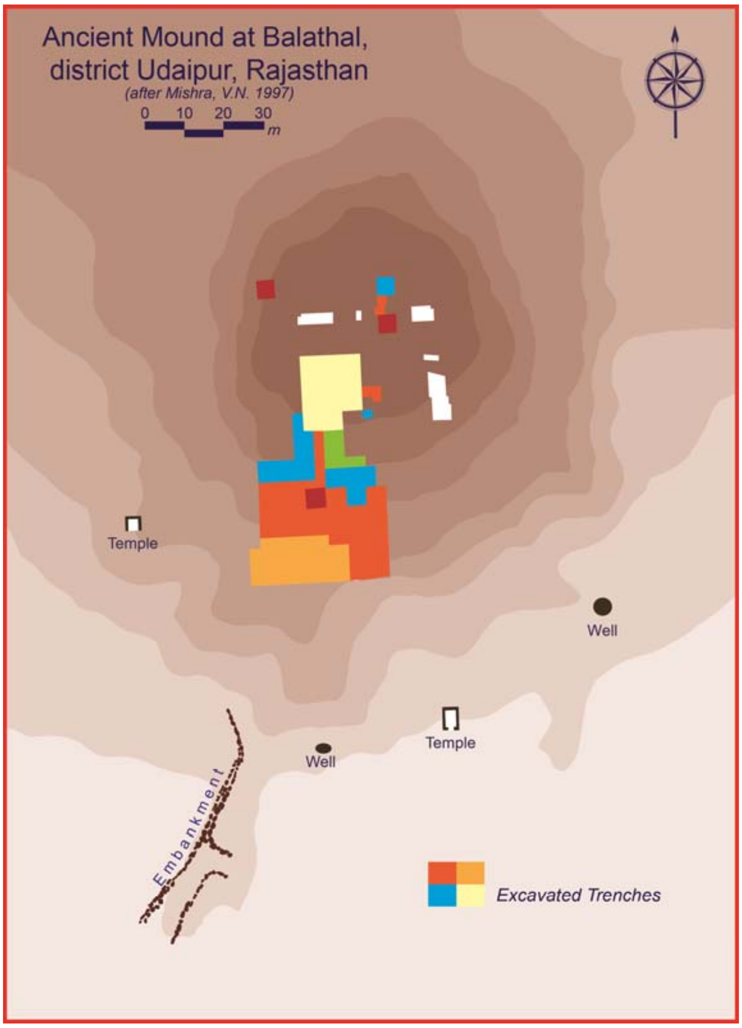


Fig. 2.96: Balathal, district Udaipur, Rajasthan

The excavation yielded the remains of four burials in total of which a human skeleton (Burial 1997-1) was found from within the fortification and found dumped in cow-dung. The skeleton was found in a crouching position in a south – north orientation, with the head towards the south.[329] The head of the skeleton is marked by large battering marks, which led to the interpretation, that the person was killed and dumped in the cow-dung deposit.[330]

This burial is dated to the Early Historic period. Burial 1999-1 (Fig. 2.97) was a secondary burial based on the arrangement of bones, folding position of arm bones, upside down position of mandible, scapulae, ribs and other bones.[331] The burial good consisted of a small globular pot of Late Chalcolithic period. Burial 3 was founding in a sitting posture with the skull and bones of upper part missing. The body faces the north, with the legs folded and drawn apart, in a seating posture, and hands resting on knees in a meditating posture.[332]



Fig. 2.97: Burial No. 1999-1, Balathal

Burial 1999-3 belongs to that of an adult in east – west orientation, the body being laid on a firm cow-dung layer. The head was placed on a flat stone, which was in turn supported by another smaller stone. Few other stones were also found placed below the knee and hip portion of the body. The burial goods consist of two carnelian eye-beads, placed on the abdomen and a copper pin.[333]

2.2.23 Utawad

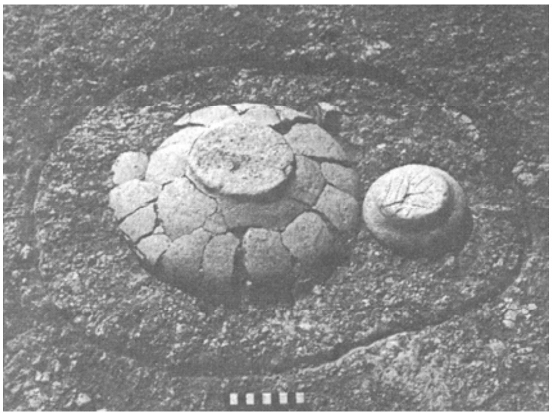
Utawad (22^0 4' 25" N; 75^0 0' 7" E) is located in district West Nimar, Madhya Pradesh and at a distance of nearly 400 m from the right bank of a seasonal nullah known as Sosar, which joins River Narmada. The ancient site is located at a distance of nearly 800 m north of the village Utawad. The site was excavated by S.B. Ota of the Prehistory Branch of Archaeological Survey of India during 1994-95 season.[334] It has been estimated that the Chalcolithic settlement at Utawad covers an area of nearly 1500 m^2 with a maximum thickness of 0.5 m over a 0.8 m layer of black cotton soil.[335] The black cotton soil is over the Narmada alluvium, *"….which is yellowish kankary silt."*[336]

The excavation brought to light a Chalcolithic Culture at Utawad that has been placed in two sub-phases based on the structural evidence and associated finds. While the Phase I is characterized by the presence of dwelling pits as the mode of habitation, the Phase II is marked by the absence of dwelling pits, and evidenced by the presence of structural remains like *"…….a fireplace, a sunken floor without a fireplace, and a floor at the surface level."*[337] The ceramic industry comprises of black and red ware, black on red ware and associated red ware in both the phases,

while the painted potsherds are abundant in Phase I when compared to the later one. The new variety of ceramics that makes its appearance in Phase II chocolate slipped red ware jars. The excavation also brought to light the remains of at least two non-sepulchral pot burials even though evidence collected both from the surface and from regular excavation indicates that 26 similar burials might have been existed.[338] This could be surmised due to the fact that the pot burials have impression of *palas* leaf (*Buteamonosperma or Buteafrondosa*) on its base. Evidence collected from the site brought to light several pot bases with *palas* leaf impression, which helped the excavator to conclude that they too could have formed part of pot burials. Two of the pot burials mentioned above were excavated.

2.2.23.1 Burial 1

Burial 1 is located north of a sunken floor at a depth of 0.34 m and the burial pit is in north – south orientation measuring 0.6 X 0.35 m.[339] The pit contains two pots, both inverted, the larger one is of burnished red ware of thick fabric while the smaller pot of the same ware type is placed 8 cm north of main pot. The smaller pot bears the *palas* leaf impression on its base and remains of ash were found in both the pots.



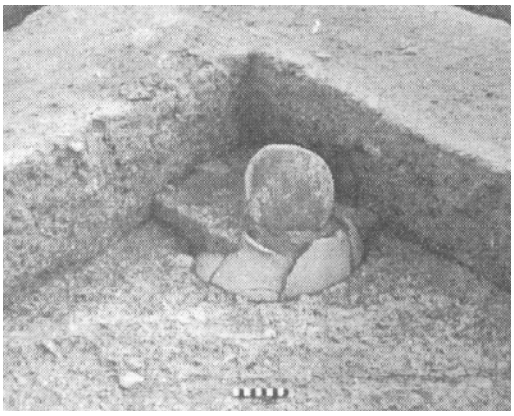
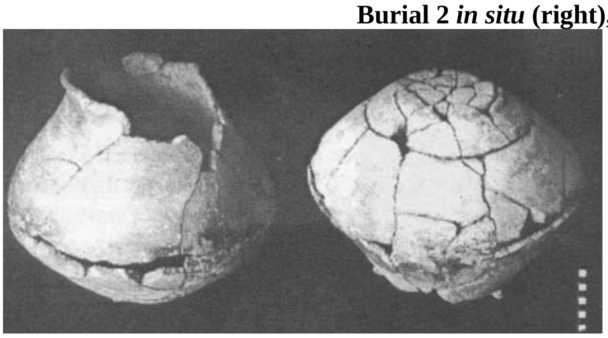


Fig. 2.98: Burial 1, smaller pot with *palas* leaf impression (left); Fig. 2.99: Burial 2 *in situ* (right), Utawad



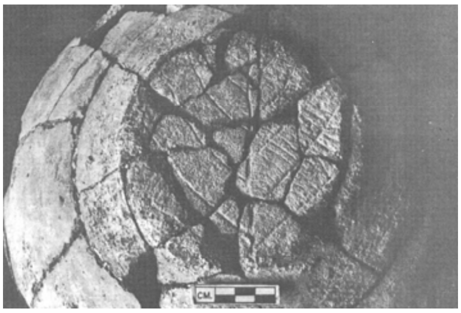


Fig. 2.100: Burial pot of Burial 2 (left); Fig. 2.101: *Palas* leaf impression on the base of burial pot in Burial 2 (right), Utawad

2.2.23.2 Burial 2

Burial 2 is located between two sunken floors at a depth of 0.65 m and the burial pit is circular in shape measuring 0.75 m in diameter.[340] This burial contains a medium sized jar of red ware, burnished on the upper part, the position of which is indicated by placing a quartzite cobble.[341] The jar had remains of charcoal placed underneath a basalt stone. This jar also bears the impression of *palas* leaf as in the case of Burial 1.

2.2.23.3 Significance of *palas* leaf impression

The excavator, while drawing the reference of *palas* leaf in ancient Sanskrit literature like *Rigveda, Atharvaveda, Satapatha Brahmana, Srauta* work of Katyayana, *AsvalayanaGrihya Sutra*, indicates the importance given to the sacred tree and leaf in the past.[342] It has been pointed out that the tree is associated with funeral rites and in one of the texts, it is associated with the rituals of post-cremation burials in case death of an individual in a foreign country and the body could not be subjected to rituals in the native country.[343] Reference is also made to the creation of a figure of the individual in such a case of 360 *kusa* grass of *palas* leaf or twigs of *udumbara* and then cremated to symbolise the original ritual.[344] Thus, the evidence from Utawad is an interesting one, which belongs to the Chalcolithic culture and bears the remains of ancient rituals performed during funerary customs and traditions.

2.2.24 Other sites containing evidence of burials

The explorations carried out by R.V. Joshi of the ASI in the Tapti valley between the sites of Prakasha and Ukai, along a 40 km stretch, brought to light many Chalcolithic sites.[345] The Chalcolithic site of Savalda yielded the evidence of a Chalcolithic burial and also at Panjra near Dhulia, a Chalcolithic burial site with typical pottery was discovered.[346]

2.3 Megalithic Burial Practices and Customs

The megalithic tradition in India which consist of *"…..tombs and related monuments constructed usually of large slabs or block of stone, either in their natural form or roughly quarried and trimmed"* are largely found in Deccan and peninsular region,[347] although examples are also available from the northeast India and Kashmir. The term "megalithic" was originally used in the western and northern

Europe, where the antiquarians used this term to refer to the monuments made of huge, undressed stones and termed in Celtic dolmens, cromlechs and menhirs.[348] The megalithic tombs are a widely occurring monument type in other parts of the world – in the areas bordering the Mediterranean and the Atlantic, in the Caucasus, in Iran.[349]

This tradition post-dates the Harappan period and a host of varieties have been discovered and many of them excavated. Even though the megalithic tradition post-dates the Harappan period, some of its beginnings could be gleaned from the evidences obtained from Dholavira. The evidence of Dholavira is elaborated in Chapter IV, which clearly indicates that it might have been a precursor to the larger megalithic tradition of the peninsular India. A complete and exhaustive analysis of all the megalithic types is beyond the scope of present study as it post-dates the Harappan period. However, it is attempted here to present the various megalithic burial types in order to understand the nature of these burials. The megalithic tombs and monuments have been studied by various scholars starting from the 19th century CE onwards. The prominent among them being Babington,[350] James Fergusson,[351] Jagor of Berlin,[352] Alexander Rea,[353] Louis Lapique,[354] J.W. Breeks,[355] Sewell,[356] Das Gupta.[357] The surveys undertaken by ASI under Alexander Rea between 1889 – 1905 in Tirunelveli district and subsequently at Perumbair from 1904 – 1908[358] are worth mentioning.[359] The ASI again undertook a detailed survey after 1944 in order to classify the south Indian megaliths in a scientific manner, which was published by V.D. Krishnaswami.[360] The post-independence era saw a spurt of exploration and excavation of various megalithic sites and the nomenclature of Krishnaswami is more or less used, albeit with some modifications. The most common types of megaliths as described by Krishnaswami[361] and Srinivasan & Banerjee[362] are as follows:

(a) Dolmonoid Cist without port-holes, surrounded by a single stone circle;

(b) Dolmonoid Cists with port-holes;

(c) Cairn Circle;

(d) Urn burials with or without the surface indication, either by cairn circles or gneissic capstone;

(e) Multiple Dolmens

(f) Port-hole Cist

(g) Menhirs

(h) Umbrella Stone or *Topikallus*

(i) Hood Stone or *Kudaikallus* and multiple *kudaikallus* arranged in groups of three or five, each group surrounded by a large stone circle;

(j) Rock-cut caves

B.K. Thapar, based on the evidences available in the 1980s provided the following exhaustive typology of the megaliths for different regions:[363]

Peninsular region

1) Cairn-circles (in Vidarbha, Maharashtra)

2) Cairn-circles, cist-circles, pit-circles, menhirs, alignments (in the Deccan plateau and northern Karnataka)

3) Cists with passages or passage chamber tombs (in districts Belgaum and Bijapur, Karnataka)

4) Dolmenoid cists, cairn-circles, urn-burials and barrows, and sarcophagus (in north Tamil Nadu)

5) Cairn-circles and cists, including the transepted variety (in Pudikkottai-Coimbatore region, Tamil Nadu)

6) Urn-burials (in Tirunelveli region, Tamil Nadu)

7) Dolmenoid cists, urn-burials, hat-stones or mushroom-shaped umbrella stones (topikals or kudaikals), hood-stones, and rock-cut underground caves with single or multiple chambers (catacomb tombs) (in Kerala)

Extra peninsular region

8) Cists (in the Leh valley)

9) Menhirs (in Burzahom and Gufkral in the neighbourhood of Srinagar)

10) Stone-circles and cairns (near Jaipur)

11) Dolmens (in the region of Almora)

Vindhyan region

12) Cists enclosed by cairns (in districts Allahabad, Mirzapur and Varanasi)

North-eastern region

13) Menhirs and their alignments, dolmens, stone-circles, cairns, and stone seats (in Assam, Chhota Nagpur and Bastar).



Fig. 2.102: Cairn circle with cairn packing



Fig. 2.103: Cairn circle during excavation

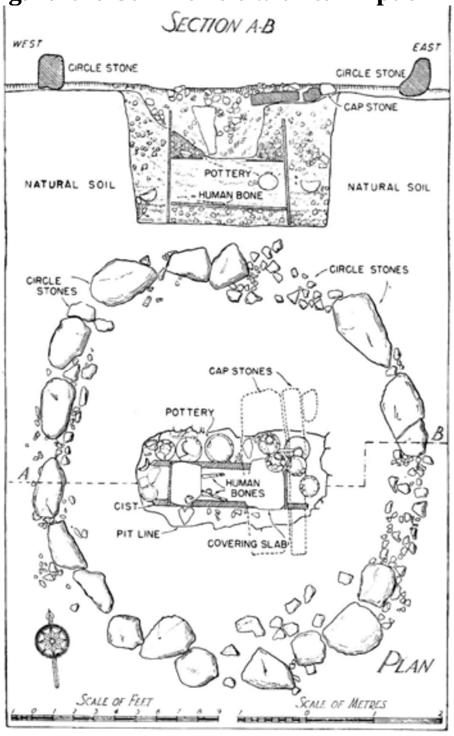


Fig. 2.104: Cairn circle with cist burial

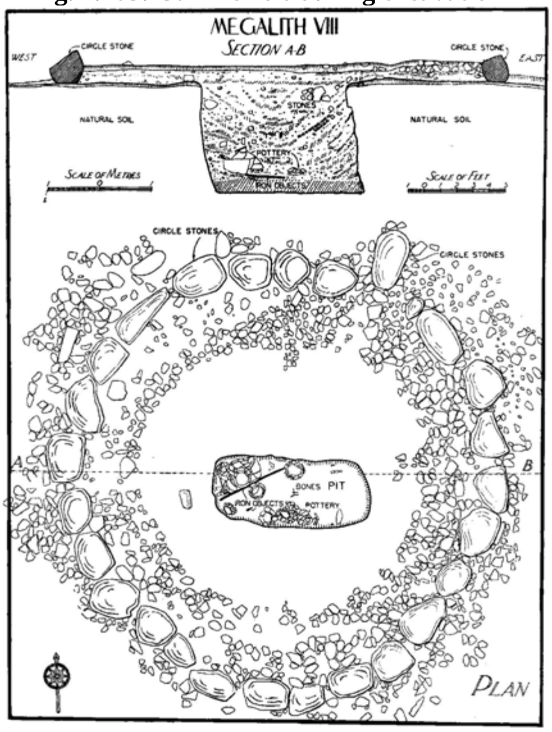


Fig. 2.105: Cairn circle with pit burial

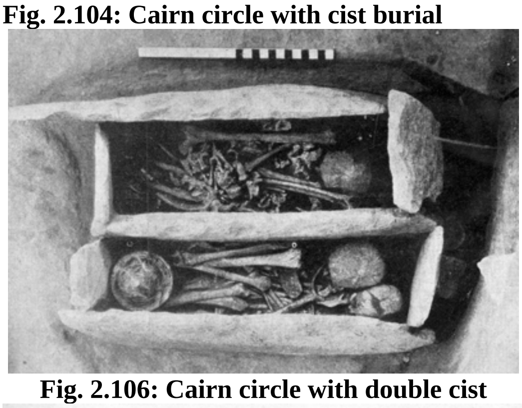


Fig. 2.106: Cairn circle with double cist

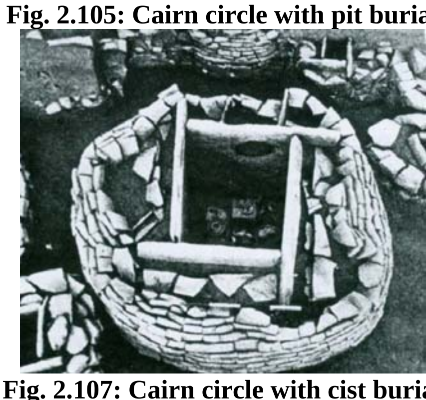


Fig. 2.107: Cairn circle with cist burial

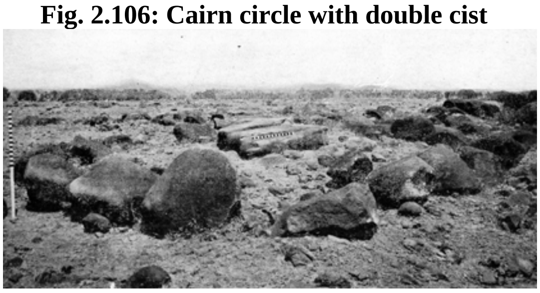


Fig. 2.108: Cairn circle with dolmenoid cist



Fig. 2.109: Cairn circle with dolmenoid cist



Fig. 2.110: Urn burial pot with lid

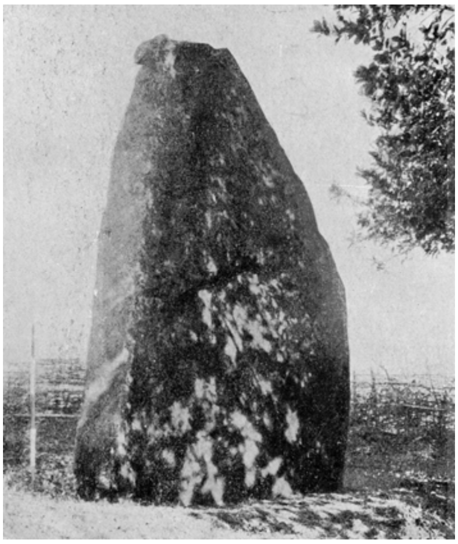


Fig. 2.111: Menhir

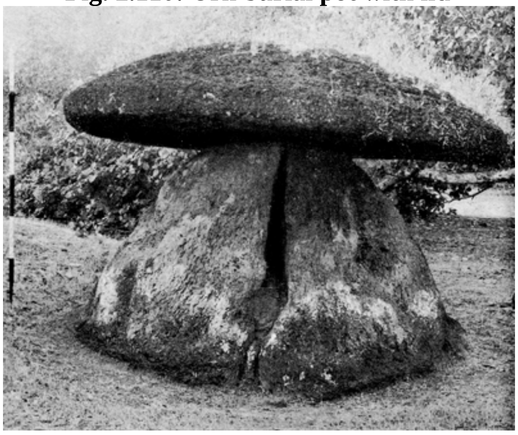


Fig. 2.112: Topikal (Hat stone)



Fig. 2.113: Urn with remains inside



Fig. 2.114: Hoodstone



Fig. 2.115: Multiple hoodstones

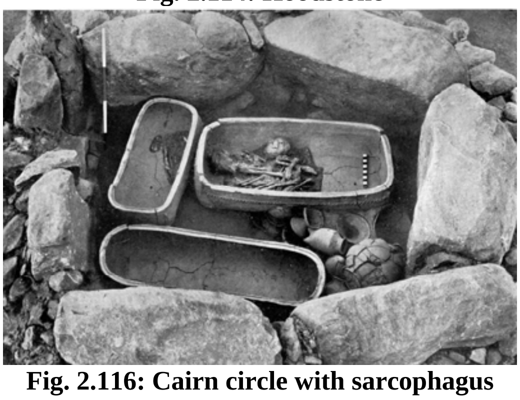


Fig. 2.116: Cairn circle with sarcophagus

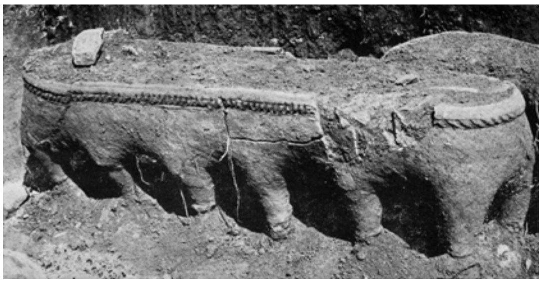


Fig. 2.117: A sarcophagus burial

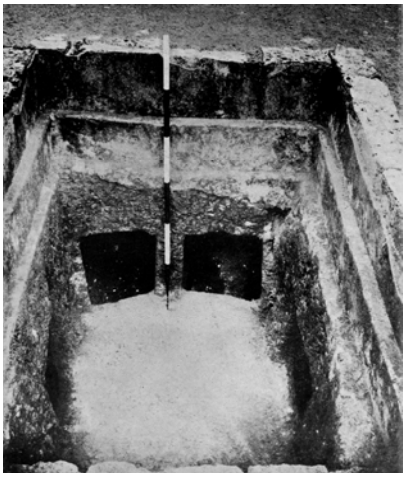


Fig. 2.118: Rock-cut chamber burial



Fig. 2.119: Transepted cist with chambers

2.3.1 Literary references to the various megalithic burial types in *Sangam* literature

The reference to various modes of disposal of the dead is vividly described in the *Sangam* literature. Even though the literature is datable to the first few centuries of the Christian Era, it preserves the some of the megalithic burial traditions. The last phase of the megalithic tradition also coincides with the early historic period and hence descriptions of some of the actual burial customs in the *Sangam* literature are not surprising.

A vivid and narrative description is found in Manimekhalai:

> *Suduvor-iduvor-todukulipaduppor*
> *Talvayinadaippor-taliyirkavippor (Ch. 6; 11)*

K.R. Srinivasan gives the interpretation[364] thus:

> *"….those who cremated (suduvor), those who cast away or exposed the dead to the elements or animals (iduvor), those who laid the body in pits which they dug into the ground (todu-kuli-paduppor), those who interred the dead body in subterranean cellars or vaults (tal-vayin-adaippor), and those who placed the body inside a burial-urn and inverted a lid over it (taliyir-kavippor)."*

Further, Srinivasan states[365]:

> *"….third method refers to inhumation; the fourth refers to vaults or cellars (vayin) let into the ground (tal), i.e. stone cists and the like,……..and the last method, …….refers to placing of the body (or the remains of cremation) into burial urns (tali), the mouth of which was covered by inverting a lid (kavi)."*

The above account clearly indicates the importance of literature in understanding the various burial customs during ancient period. The ancient Tamil literature preserved in the *Sangam* epochs is just one of the sources that can be

tapped to identify and interpret the megalithic burial customs. The actual archaeological discoveries from a large number of sites and a few examples discussed above also attest to this fact.

2.4 The various modes of disposal of dead during the earliest periods

An overview of the burial practices that were found during the Mesolithic to the Chalcolithic periods was discussed in the preceding pages. The typological classification of the Megalithic burial tombs was also discussed. Based on the archaeological investigations carried out at various sites spread over the Indian sub-continent, it has been found that various modes of disposal of the burials were adopted by the ancient people. The Mesolithic burials of the middle Ganga plain and other regions like Bhimbetka, Langhnaj were quite simple in terms of internment of burials and very less burial goods. The complexity of the burial disposal starts to increase from the Neolithic period onwards, Mehrgarh presenting a very good example here, which shows definite variations in the disposal of dead in the Neolithic and Chalcolithic periods, which might point towards different belief systems among the local population.

In comparison to Mehrgarh, no other Indian site has yielded quite compelling evidence to trace the evolution of the burials over millennia. The Neolithic sites at most of the places did not evolve into a true Chalcolithic phase and hence it is very difficult to trace the evolutionary patterns in the disposal of dead. The following table gives a brief account of the various burial types found from different periods:

Sl. No.	Name of the site	Nature of the burial	Orientation	Burial goods present or not
1.	Bhimbetka	NA	Southwest-Northeast; East-West	Not present
2.	Damdama	Shallow oblong pits	West-East; East-West; North-South; South-North	Present
3.	Mahadaha	Shallow oblong pits	East-West; Southeast-Northwest	Present
4.	Lekhahia	Pits	East-West; North-South	Present
5.	Sarai Nahar Rai	Pits	West-East	Not present
6.	Baghai Khor	Pits	East-West	Not present
7.	Bagor	Pits	Northwest-Southeast; East-West	Present

Sl. No.	Name of the site	Nature of the burial	Orientation	Burial goods present or not
8.	Rock Shelter, Deulga Hills	Secondary burial in a pit	Indeterminable	Not present
9.	Dhansura	Pit	Northeast-Southwest	Present
10.	Loteshwar	Shallow pit	Not given	Not present
11.	Mehrgarh I& II	Pits / shafts lined with mud bricks	East-West	Present, simple to elaborate and rich; use of red ochre on body
12.	Mehrgarh III	Pits / shafts lined with mud bricks	East-West; one with North-South; one with half-seated position	Present; use of red ochre discontinued
13.	Mehrgarh IV – VII	Generally infant burials in clay boxes or coffins	East-West, head facing south	Present; not elaborate, simple ones
14.	Mehrgarh VIII	Cenotaphs with mud-lines bricks	East-West	Present
15.	Burzahom	Pit	Northeast-Southwest; Northwest-Southeast	Present
16.	Nagarjunakonda	Pit and Urns	North-South	Present
17.	Budihal	Pit and Urns	East-West	Present
18.	T. Narasipur	Pit	East-West	Present
19.	Pandu Rajar Dhibi	Extended in pits; Urns	East-West	Present
20.	Tekwada	Urns, Pit	North-South	Present
21.	Chandoli	Urns	North-South; Northeast-Southwest	Present
22.	Walki	Urn, extended	North-South	Present
23.	Daimabad Phase II	Mud-brick coffin		Present
24.	Daimabad Phase III	Pit and pot burial		Not present
25.	Daimabad Phase IV	Single, double urns; pits	North-South	Present
26.	Piklihal	Pit	North-South	Present
27.	Utnur	Pit	Child burial in fetal position	Not present
28.	Brahmagiri	Urn, extended	East-West	Present
29.	Tekkalakota	Urns; Extended, in pits	South-North; West-East	Present

Sl. No.	Name of the site	Nature of the burial	Orientation	Burial goods present or not
30.	Hallur	Urns	East-West	Present
31.	Kaothe	Pit	North-South	Not present
32.	Inamgaon	Urn, extended		Present
33.	Nevasa	Urns, single, double and triple; extended	North-South; North-Northeast-South-southeast	Present
34.	Songaon	Urns, single, double and triple	Northwest-Southeast; North-South	Present
35.	Tuljapur Garhi	Shallow oval pit	East-West	Present
36.	Sonpur	Urn and Post-cremation		Present
37.	Balathal	Pit	Flexed and East-West	Present
38.	Utawad	Urns in pits	North-South	Not present

The above table clearly indicates that different modes were adopted for the disposal of the dead during prehistoric and protohistoric period. A general observation of the disposal types clearly indicate that urn burials were predominantly used for the infants and children. The adults, in a majority of the cases were interred in pits. The Mehrgarh evidence points to the internment in clay chambers or boxes for the infants and children. All these evidences may indicate that that people intended to place the infants and children in a state of protection, still thinking them to be under their control.

2.5 References

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Chapter – 3

Harappan Civilization and the Burial Repertoire

3.1 Harappan Civilization: History of Research

The Harappan Culture flourished in the Indus and adjoining river valleys during the second half of third millennium BCE The research carried out for nearly a century in this field has harnessed an enormous amount of data which has been helpful in understanding the formative stages through the maturity and the deurbanisation and the ultimate transformation to rural cultures through the investigations by various scholars like Cunningham,[1] Marshall,[2] Mackay,[3] Wheeler,[4] Joshi,[5] Lal,[6] Thapar,[7] Bisht,[8,9] Possehl,[10] Kenoyer.[11] Ever since the concept of "Indus Civilisation" was understood in 1920s, more and more sites were added to the corpus of Harappan sites and the site count as on today stands at 477 for Early Harappan; 1022 for Mature Harappan and 1281 for Post-urban Harappan cultures.[12] The recent excavations at places like Harappa,[13] Dholavira,[14,15,16,17,18] Rakhigarhi,[19] etc., have enabled us to understand the dynamism in the evolution, maturity and ultimate decline of this Civilization.

However, it is recorded in the writings of several scholars that the beginnings of the Harappan studies can be traced back to March or April 1829, when Chales Masson, who was an antiquarian from the state of Kentucky in America[20] visited Harappa. Masson actually was travelling along the western borderlands of British India during the 1820s and 1830s and an account of his journeys can be found in the publications made in 1843. Charles Masson gives a description of what he saw of the great ruinous mound of Harappa in 1826 and he identified the mound to be of ancient Sangala of Arrian:

> *"…a long march preceded our arrival at Haripah…..I found in front of the village and a ruinous brick castle. Behind us was a large circular mound, or eminence, and to the west was an irregular rocky height, crowned with remains of buildings, in fragments of walls, with niches…..The walls and towers of the castle are remarkably high, though, from having been long deserted, they exhibit in some parts the*

ravages of time and decay…..without perceiving that every condition of Arrian's Sangala was here fulfilled,……The data of Arrian are very minute, and can scarcely be misapplied to Haripah, the position of which also perfectly coincides with what, from inference, we must assign to Sangala".[21]

Thus, it is clear from the above account that the mound of Harappa was in a well preserved state in 1826. The next account of a Harappan site is of Amri by Alexander Burnes, who made a voyage up the Indus River in 1831. Burnes describes it as an archaeological site as:

"near the modern village…..there is a mound of earth about forty feet high, which the traditions of the country point out as a halting-place of a king, who ordered the dung of his cavalry to be gathered together, and hence the mound of Amree".[22]

Burnes also visited Harappa in 1831, five years after Masson's visit. He could not exactly fix a proper chronology for Harappa and describes it as an extensive mound nearly three miles in circumference. The first Director General of the Archaeological Survey of India (ASI), Alexander Cunningham was the next visitor to Harappa, on three occasions, 1853, 1856 and 1875. In his report in 1875, Cunningham noted that "the ruins of Harappa are the most extensive of all the old sites along the banks of the Ravi".[23]

The size of Harappa was given as 2.5 miles (4 km) in circuit and the height varying from 12 to 18 m. Cunningham also noted with regret that extensive damage had been caused to the site due to the removal of brick from this site for use as brick ballast by the railway contractors, most probably for the Lahore – Multan railway line. Cunningham also carried out a minor excavation at the site, but could not assign any satisfactory chronology to the ruins. He has the credit of making the first site plan and designated the principal mounds at Harappa as A-B, C, D and E (Fig. 3), which are still in use today. Cunningham describes the find of a single seal as a most curious one (Fig. 3.1), which was made of smooth black stone without polish.[24] He also describes stone implements, pottery and a ring stone (Fig. 3.2).



Fig. 3.1. The first seal find from Harappa, drawing of A. Cunningham (1875); the impression is modern (*after Parpola 1993*)

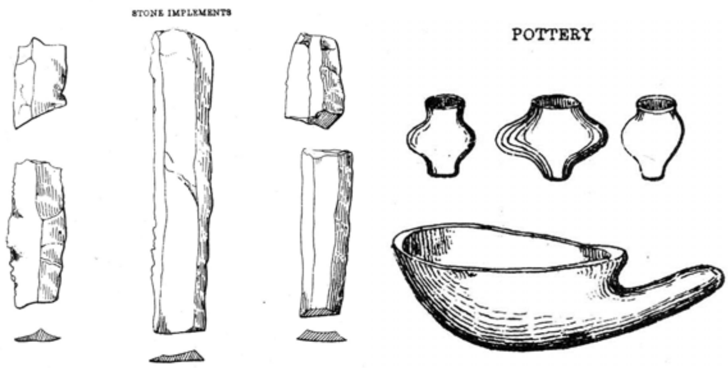


Fig. 3.2: The finds from Harappa by Cunningham; stone implements: chert blades and pottery (*Cunningham 1875: Plate XXXIII*)

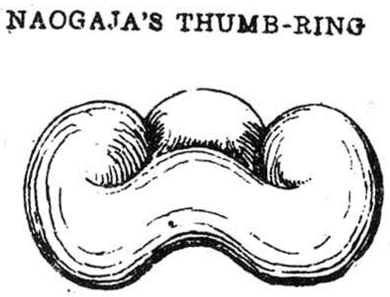


Fig. 3.3: The finds from Harappa by Cunningham: Naogaja's thumb-ring: ring stone (*Cunningham 1875: Plate XXXIII*)

The first of the three Harappan seals were published respectively by A. Cunningham (1875), M. Longworth Dames (1886) and J.F. Fleet (1912).[25] These publications did not indicate the real importance of these seals, and Cunningham describes the one he published as,

> *"….there is an inscription in six characters…..are certainly not Indian letters; and as the bull which accompanies them is without a hump, I conclude that the seal is foreign to India".*[26]

Sir John Marshall also published two more Harappan seals in 1922, prior to the understanding of the Indus civilization. He describes the legends to be in

pictographic script, which is yet to be deciphered. Meanwhile, some other sites of the Harappan Civilization were being discovered, albeit on a random basis, and without understanding their real significance. One such site was Sutkagen-dor located in the Dasht valley of Makran, was first noticed by Major E. Mockler in 1875.[27] Sutkagen-dor is the western most Harappan sites and Mockler also did a minor excavation in 1876 to reveal houses built of burnt bricks, stone knives, bone, pieces of copper, pottery, etc. The site was later investigated by Sir Aurel Stein who brought to light several evidences related to habitation, disposal of dead, etc.

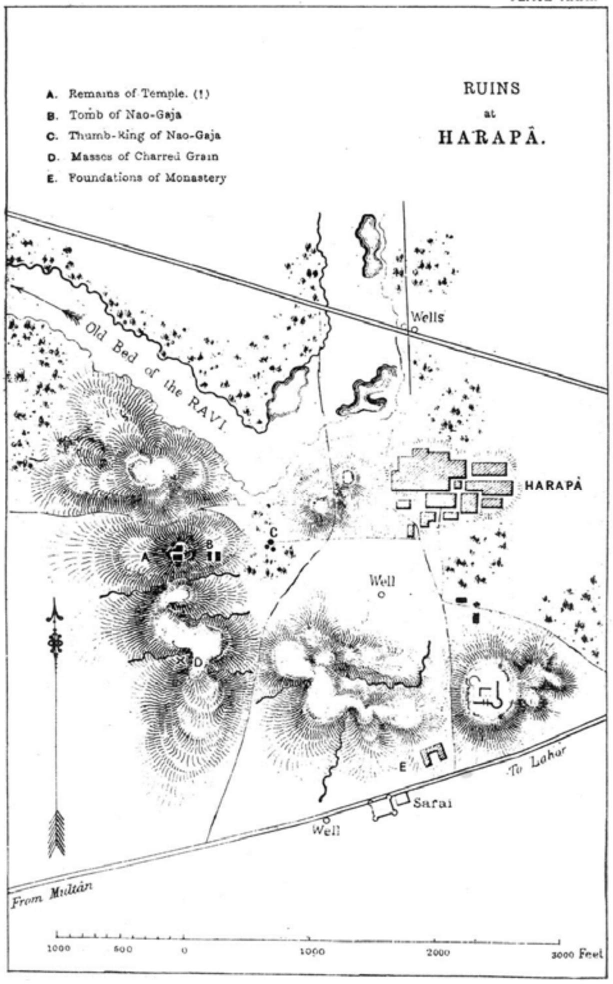


Fig. 3.4: The differentiation of various mounds at Harappa and their names (*Cunningham 1875: Plate XXXII*)

Dr. Fritz Noetling, a palaeontologist of the Geological Survey of India (GSI), first recognised the importance of the large mound at Dabarkot as an archaeological site in 1898.[28] Noetling also visited sites like Periano Ghundai

(1897) and Rana Ghundai (1898), made collections and published small reports. Sir Aurel Stein (1904) later visited Dabarkot, where he later conducted a small excavation in 1927. The site of Kalibangan was described as an ancient site as early as 1829 as "Kali-bang" by Lt. Col. Tod.[29] Luigi Pio Tessitori again visited the site in April 1917, who undertook a small excavation in 1918. Tessitori also calls Kalibangan as "Kali Vangu" and "Kali Banga".[30] D.R. Bhandarkar discovered the great site of Mohenjo-daro in 1911-12, who describes the ancient mound spreading over three-fourths of a mile area, and near the western edge a tower rises to a height of nearly seventy feet from the surrounding ground level.[31] Later, R.D. Banerji visited the site in 1919-20 and he makes a vivid description of the site and its remains, and describes it as an important site.

The arrival of Sir John Marshall as the Director General of ASI in 1902 revived interest in the further investigation of the three reported seals, which were preserved in the British Museum at that time. Two assessments of the mound of Harappa were made, the first one by Pandit Hira Nanda Sastri in 1909 and the second by Harold Hargreaves in 1914. Later the site of Harappa was put into excavation under Rai Bahadur Daya Ram Sahni, the Superintending Archaeologist of Northern Circle of ASI in the winter of 1920-21. One of the earliest conclusions was that the *"…the Harappa seals and their curious pictographic legends belong to the pre-Mauryan epoch; and it is to be remembered that the digging to date has pierced only the topmost levels".*[32] Excavation at Mohenjo-daro was started almost simultaneously in 1921-22 by R.D. Banerji and the discoveries made here were seen in the light of the material coming from Harappa. By 1923-24, Banerji suggested that there is a definite relationship in the material coming from both these sites.

However, the final assessment was made by Marshall himself in 1924 when he brought the materials from both Harappa and Mohenjo-daro together and compared them directly. Marshall could deduce that the finds of these sites belonged to the same stage of culture and approximately of the same age, and that they are totally distinct from anything previously known in India.[33] The findings

were published in the Illustrated London News on 20th September, 1924 which was widely publicised. The news item drew the attention of scholars and immediately Sayce responded with pointing out the similarities and close resemblance of some of the objects of Indus Valley with those of antiquities found from Mesopotamia.[34] Mackay also pointed out some of the similarities of ceramics and a seal found from Kish and Mohenjo-daro. The seal was an identical one to those found from Harappan and Mohenjodaro and as found from the debris beneath a temple of Hammurabi's time.[35] Several other examples of Harappan antiquities found in Mesopotamia are known to us since then (Fig. 3.5, 3.6 and 3.7). Thus a clear chronological framework emerged for dating the newly christened Indus Valley Civilization or Harappan Civilization (which is more prevalent now). A time framework of 4th – 3rd millennium BCE was now possible for dating the earliest culture of Indian sub-continent. The presence of Harappan antiquities in Mesopotamia clearly indicates the relationship between these two cultures and opens a new chapter in the interregional contacts and trade relations since the third millennium BCE

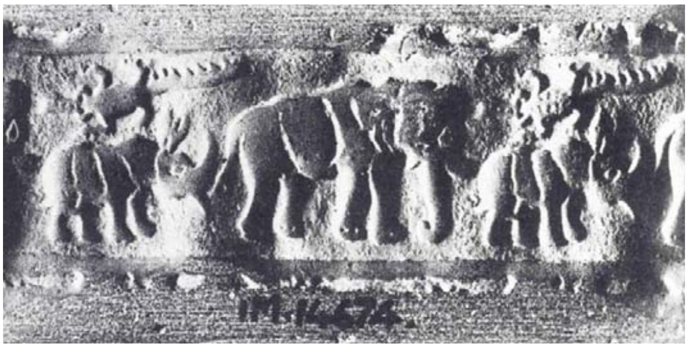


Fig. 3.5: Impression of a cylinder seal from Tell Asmar (in Mesopotamia) (*after Parpola 1993*)





Fig. 3.6: Two seals with the unicorn motif and identical signs; left one is from Kish and the right one from Mohenjo-daro (M-228) (*after Parpola 1993*)



Fig. 3.7: Impression of a round seal, probably found from Mesopotamia (*after Parpola 1993*)

The excavations at Harappa and Mohenjo-daro continued well up the latter half of 1930s. During this period, various parts of both these sites were excavated. The first cemetery site at Harappa, christened as Cemetery H was discovered in 1927 after a heavy downpour during the monsoon season by K.N. Sastri, which was subsequently excavated. Cemetery H belongs to the late Harappan phase of the Harappan culture and it had parallels with the material coming from Jhukar in Sindh, which was discovered by Majumdar.[36] K.N. Sastry is also credited with the discovery of another cemetery site at Harappa, the Cemetery R37. This cemetery belonged to the mature Harappan phase and is the largest cemetery which dates to this period.[37] At Mohenjo-daro no cemetery remains could be found. The other Harappan sites excavated during this period were Rangpur by M.S. Vats (1934), Chanhu-daro by E.J.H. Mackay (1935-1936). Chanhudaro yielded the stratigraphic relationship between the mature and late Harappan phases. It also yielded evidence on the bead and seal making facilities at this site. Wheeler made a brief excavation in 1946 at Harappa at the defenses and cemetery area. He established the stratigraphic relationship between the Cemetery R37 and H and proved that the latter is younger than the former. Cemetery R37 was again put into digging by M.R. Mughal in 1966 and by the project initiated by G.F. Dales which helped to define the various phases in the cemeteries at Harappa.[38]

The creation of India and Pakistan in 1947 placed almost all the known Harappan sites in Pakistan except only two sites in India, namely, Kalibangan and

Rangpur. The renewed exploration on both sides brought to light a large number of sites belonging to early, mature and late Harappan phases. Many sites were also excavated, the major among them are Rangpur and Lothal,[39,40] Kot Diji,[41] Kalibangan,[42,43,44] which was excavated for nine field seasons from 1960-61 to 1968-69; Dholavira,[45] renewed excavations at Harappa,[46] Rakhigarhi,[47]to name a few. The excavation at Mehrgarh opened a new chapter in the history and archaeology of Indian sub-continent in terms of transformation from food gathering to food producing stages.[48]

Several other sites were also excavated during this period which includes Balakot, Banawali, Rojdi, Surkotada, Kuntasi, Bagasra, Nageshwar, Shortugai, Bhagwanpura, Mitathal, Ropar, Hulas, Alamgirpur, Allahdino, Kili Gul Mohamamd, Miri Qalat, Gumla, Rahman Dheri, Baror, Bhirrana, Tarkhanawala Dhera, Juni Kuran, etc., which have helped us to understand the various stages through which the Harappan culture has evolved, transformed, reached its zenith and ultimately dissipated into several regional cultures. As mentioned above, the various explorations and excavations have enabled us to understand the spatial distribution of the sites in a better manner in terms of the geography and changing environments. The most prominent among the exploratory surveys are the Cholistan survey by Mughal and Ghaggar-Drisadvati survey by Ghosh, which brought to light a large number of sites of early, mature and late Harappan phases.

3.1.1 Terminology and Chronology

Ever since the identification of the Indus Valley Civilisation by Marshall in 1924, and a relative chronology emerged based on the identification of Harappan antiquities from datable levels in Mesopotamian sites, the various stages and phases, chronology of the Harappan Culture has undergone many revisions and corrections. The advent of radiocarbon dates also helped in a larger way in understanding the chronology of the Harappan civilization. The initial suggestions in 1920s were that the mature Harappan might be as old as c. 3000 BCE and the civilization itself could have lasted for 1000 years.[49] Later, Wheeler

suggested a time period of 2500 – 1500 BCE for the Harappan civilization, while Fairservis based on the evidences emerging from the pinpointing of Harappan antiquities from Mesopotamia into a clear chronological framework, suggested only a 500 year duration for the Harappan Civilization, from 2500 – 2000 BC.[50] Now it has been clearly understood that Harappan Civilization is contemporary to the Egyptian, Mesopotamian and Chinese civilizations.

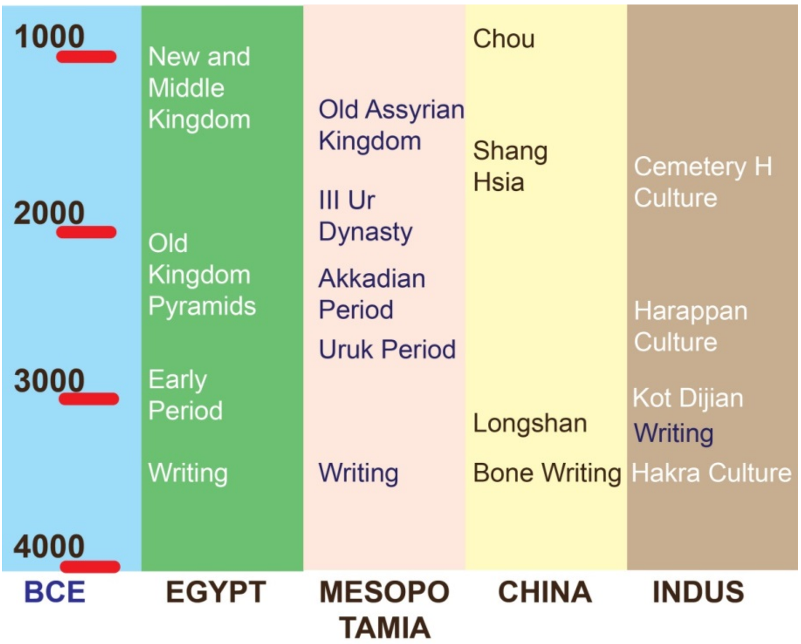


Fig. 3.8: Relative chronologies of Bronze Age Civilizations of the world

The advent of radiocarbon dating technology and the dating of several archaeological sites through this method enabled the archaeologists to arrive at a proper chronological framework and Agrawal in 1964 demonstrated that the dates suggested by Fairservis of a shorter chronology might be supported by the radiocarbon data set.[51] The method of calibration of radiocarbon dates further helped in determining the reasonable time bracket for the Harappan Civilization and due to the presence of a large number of radiocarbon dates available through the various excavated sites have also enabled in fixing the proper chronology. The results of various excavations have also helped the archaeologists in the understanding of various phenomena and stages through which the Harappan Culture as a whole is represented. There were various developmental phases before which the Mature Harappan Culture actually emerged and encompassed

over a large area. These developmental phases were being identified from various sites like Amri, Kalibangan, Harappa, Mehrgarh, Kot Diji, and a host of other sites. The archaeologists used various terminologies like the "pre-Harappan", "early Harappan" for the culture that immediately preceded the Harappan Culture. The evidence from Mehrgarh and its neighbouring sites like Nausharo, Pirak and Sibri brought to light an excellent and continuous evolution of cultures starting from the Neolithic Culture onwards to the beginning of Iron Age, through the Chalcolithic and Bronze Ages.[52] The evidence from Mehrgarh is from the food gathering to the food producing stages and the gradual evolution and development into the settled and urban characters of the culture. The evidence from Mehrgarh is also supplemented from sites like Kili Ghul Mohammad and hence enabled the archaeologists to define several phases / stages starting from the food gathering to the Iron Age. Based on the cultural strata at Kot Diji, Rafique Mughal proposed that the Harappan Culture evolved from the cultural traits that immediately preceded it and hence named it as "Early Harappan Period".[53] The terminology, "Early Harppan period / Culture" is more predominant while describing the culture that preceded the Mature Harappan Period / Culture. Hence, this terminology will be referred to in this dissertation.

Similarly, the terminology of "post-Harappan" and "late-Harappan" is used to address the culture that immediately succeeded the Harappan Culture and had some cultural traits continuing in them. However, some archaeologists like Possehl use the terminology "Post-urban" to the cultures that succeeded the Harappan Culture, mainly on the basis of the urban and non-urban characters that differentiates these cultures.

The term "post-urban" phase also included the Ochre Coloured Pottery Ware culture, Painted Grey Ware culture also, which have been argued to represent the continuities of Harappan Culture. Hence, the terminology, "Post-urban Harappan" will be used for defining the cultures that immediately succeeded the Mature Harappan Culture. For the sake of a wider understanding of the several stages and phases of the Harappan Culture and those preceded and

succeeded it, the pattern followed by Possehl[54] and Kenoyer is presented here. Possehl gives the following stages and phases and their corresponding chronologies:[55]

STAGES	PHASES	CHRONOLOGY
STAGE ONE	**Beginnings of Village Farming Communities and Pastoral Camps**	
	Kili Ghul Mohammad Phase	**7000-5000 BC**
	Burj Basket Marked Phase	**5000-4300 BC**
STAGE TWO	**Developed Village Farming Communities and Pastoral Societies**	
	The Kechi Beg and Hakra Wares Phases are thought to have been generally contemporaneous.	
	Togau Phase	**4300-3800 BC**
	Kechi Beg Phase	**3800-3200 BC**
	Hakra Wares Phase	**3800-3200 BC**
STAGE THREE	**Early Harappan**	
	Four Phases believed to have been generally contemporaneous	
	Amri-Nal Phase	**3200-2600 BC**
	Kot Dijian Phase	**3200-2600 BC**
	Damb Sadaat Phase	**3200-2600 BC**
	Sothi-Siswal Phase	**3200-2600 BC**
STAGE FOUR	**The Early-Mature Harappan Transition**	**2600-2500 BC**
STAGE FIVE	**Mature Harappan**	
	Five Phases thought to have been generally contemporaneous	
	Sindhi Harappan Phase	**2500-1900 BC**
	Kulli Harappan Phase	**2500-1900 BC**
	Sorath Harappan Phase	**2500-1900 BC**
	Punjabi Harappan Phase	**2500-1900 BC**
	Eastern Harappan Phase	**2500-1900 BC**
	Two related phases in adjacent regions thought to be generally contemporaneous with the Mature Harappan	
	Quetta Phase	**2500-1900 BC**
	Late Kot Diji Phase	**2500-1900 BC**
STAGE SIX	**Post-Urban Harappan**	

	Jhukar Phase	**1900-1800 BC**
	Early Pirak Phase	**1800-1000 BC**
	Late Sorath Harappan Phase	**1900-1600 BC**
	Lustrous Red Ware Phase	**1600-1300 BC**
	Cemetery H Phase	**1900-1500 BC**
	Swat Valley Period IV	**1650-1300 BC**
	Late Harappan Phase in Haryana and western Uttar Pradesh	**1900-1300 BC**
	Late Harappan-Painted Grey Ware Overlap Phase	**1300-1000 BC**
	Early Gandhara Grave Culture Phase	**1700-1000 BC**
STAGE SEVEN	**Early Iron Age of Northern India and Pakistan**	
	Late Pirak Phase	**1000-700 BC**
	Painted Grey Ware Phase	**1100-500 BC**
	Late Gandhara Grave Culture Phase	**1000-600 BC**

Kenoyer[56] suggests the following chronology for various cultural stages of south Asia:

ARCHAEOLOGICAL / HISTORICAL EVENTS	GENERAL DATES
INDUS VALLEY TRADITION	
EARLY FOOD PRODUCING ERA	
Neolithic / Chalcolithic	***ca.* 6500 to 5000 BCE**
REGIONALISATION ERA	
Early Harappan Phase	***ca.* 5000 to 2600 BCE**
INTEGRATION ERA	
Harappan Phase	**2600 to 1900 BCE**
LOCALISATION ERA	
Late Harappan Phase	**1900 to 1300 BCE**
POST-INDUS OR INDO-GANGETIC TRADITION	
REGIONALISATION ERA	***ca.* 1200 to 800 BCE**
Painted Grey Ware	**700 or 500 to 300 BCE**
Northern Black Polished Ware	
EARLY HISTORIC PERIOD BEGINS AROUND 600 BCE	**563 – 483 BCE (or 440 – 360 BCE)**
Buddha (Siddhartha Gautama)	***ca.* 500 – 400 BCE**

Panini (Sanskrit Grammarian)	
Alexander of Macedon received "submission" and becomes the "ally" of Ambhi, King of Taxila, 326 BCE	**326 BCE**
INTEGRATION ERA	
Mauryan Empire	
Chandragupta Maurya	***ca*. 317 – 298 BCE**
Kautilya (Minister of Chandragupta, possible author of Arthashastra)	
Bindusara	**298 – 274 BCE**
Ashoka	**274 – 232 BCE**

The above chronological framework is possible due to a whole range of radiocarbon dates of various excavated sites like Kalibangan, Lothal, Harappan, Mehrgarh, Kot Diji, Burzahom, Loteshwar[57], Padri[58], Prabhas Patan[59], Rojdi[60], Kuntasi[61], Nagwada[62], and a host of other sites. The chronological framework of the cultures preceding, succeeding and pertaining to the Harappan culture has been best summarised[63] by Settar and Korisettar as follows:

- *"The beginnings of food-production go back to c. 7500-5000 BCE (Kili Ghul Mohammad phase)*

- *The cultural development between the Early Harappan and Kili Ghul Mohammad is distinguished by the character of the ceramics: (a) Burj Basket Marked Phase (c. 5000-4300 BCE): (b) Togau phase (c. 4300-3800 BCE): and (c) Kechi Beg / Hakra Wares Phase (c. 3800-3200 BCE)*

- *The Early Harappan is located at 3200-2600 BCE; the Early to Mature Harappan transition at 2600-2500 BCE; the Mature or Urban Harappan at 2500-1900 BCE; and Post-Urban Harappan at 1900-1400 BCE." (Settar and Korisettar 2000: xii).*

Sculdenrein[64] suggests the following trends in Harappan settlements based on the available radiocarbon dates:

(1) Across the Harappan heartland there is minimal evidence of occupation prior to 3000 BCE: there are only four determinations from Harappa prior to that time and none from Mohenjo Daro and Kalibangan.

(2) *The end of Harappan occupation is dramatic, given the fall-off in radiocarbon dates after 2000 BCE; of the major sites only Kalibangan post-dates that period.*

(3) *Activity in both the northern and southern urban centres – represented by Harappa and Mohenjo Daro respectively – may have preceded the decline in satellite communities; the latter outlasted the two hub communities by 200-400 years.*

For the sake of convenience, the above chronology summarised by Settar and Korisettar will be followed in this dissertation. Almost contemporary to the Harappan (ca. 2600 – 1900 BCE) and late Harappan cultures were other cultures like Ahar-Banas in Rajasthan; Kayatha; Malwa; Jorwe; North Indian Neolithic in Kashmir and Gangetic Plains and some of the south Indian Neolithic sites. The chronology of these cultures has been redefined several times recently and they flourished during the second half of third millennium BCE to second millennium BCE. Hence, the Harappan and Late Harappan Cultures were not flourishing in isolation and every chance of their interaction with some or many of the above mentioned regional cultures of south India cannot be ignored.

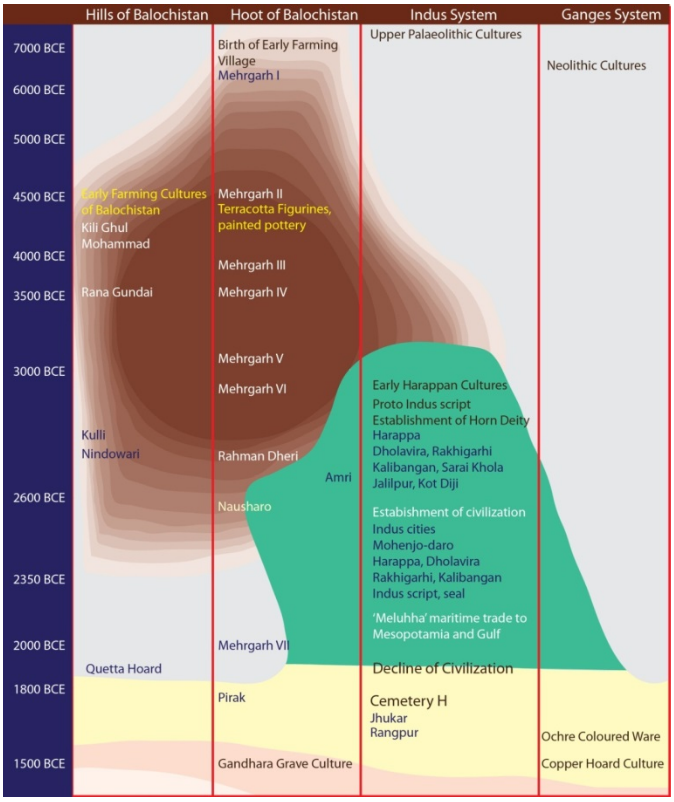


Fig. 3.9: Chronologies of various cultures of South Asia

3.2 Geography, Palaeo-climate and Distribution

3.2.1 Geography

The Harappan settlements and its geography indicate that most of the sites are closely aligned on the Indus Valley and Ghaggar-Hakra (also identified with the Sarasvati River system) Valley. The sites of Harappan Cultures, although, are found extending into the piedmont and mountainous terrain in Afghanistan; Baluchistan, Makran Coast, Kirthar Range, Sindh Kohistan, Gujarat and western Uttar Pradesh (in the Ganga-Yamuna doab). Agrawal estimates that the entire Harappan territory encompasses nearly one million square km[65] (Possehl 2000: 103). The majority of Harappan sites are located on floodplains, or former floodplain segments, at elevations below 1200 m.[66] The geography of the south-Asia and more particularly the region adjoining the Indus and Ghaggar-Hakra river systems has been aptly described by Possehl (Fig. 3.10) as follows:[67]

The Central Region	Basically the area of the lower reaches of the Indus; southern boundary is Rann of Kachchh, western boundary is up to Balakot, on the east up to the Thar desert and in the north just up to the confluence of the rivers in Punjab of Pakistan.
The Gedrosia Region	Mountainous region of Pakistani Baluchistan, known to the Greeks as Gedrosia.
The Southern Region	Largely coincident with the modern boundaries of Gujarat state of India.
The Northwestern Region	Consists of Baluchistan north of Kalat and major portions of North West Frontier Province and Swat.
The Northern Region	Presently coincident with the modern province of western Punjab in Pakistan.
The Eastern Region	Located entirely in India and consists of the modern Indian states of Punjab, Haryana, Delhi and the Ganga-Yamuna doab.
The Hakra Region	Surrounded by the northern, eastern and central regions, it is located below Kalibangan in Anupgarh district and extends further into Pakistan in the Cholistan area.

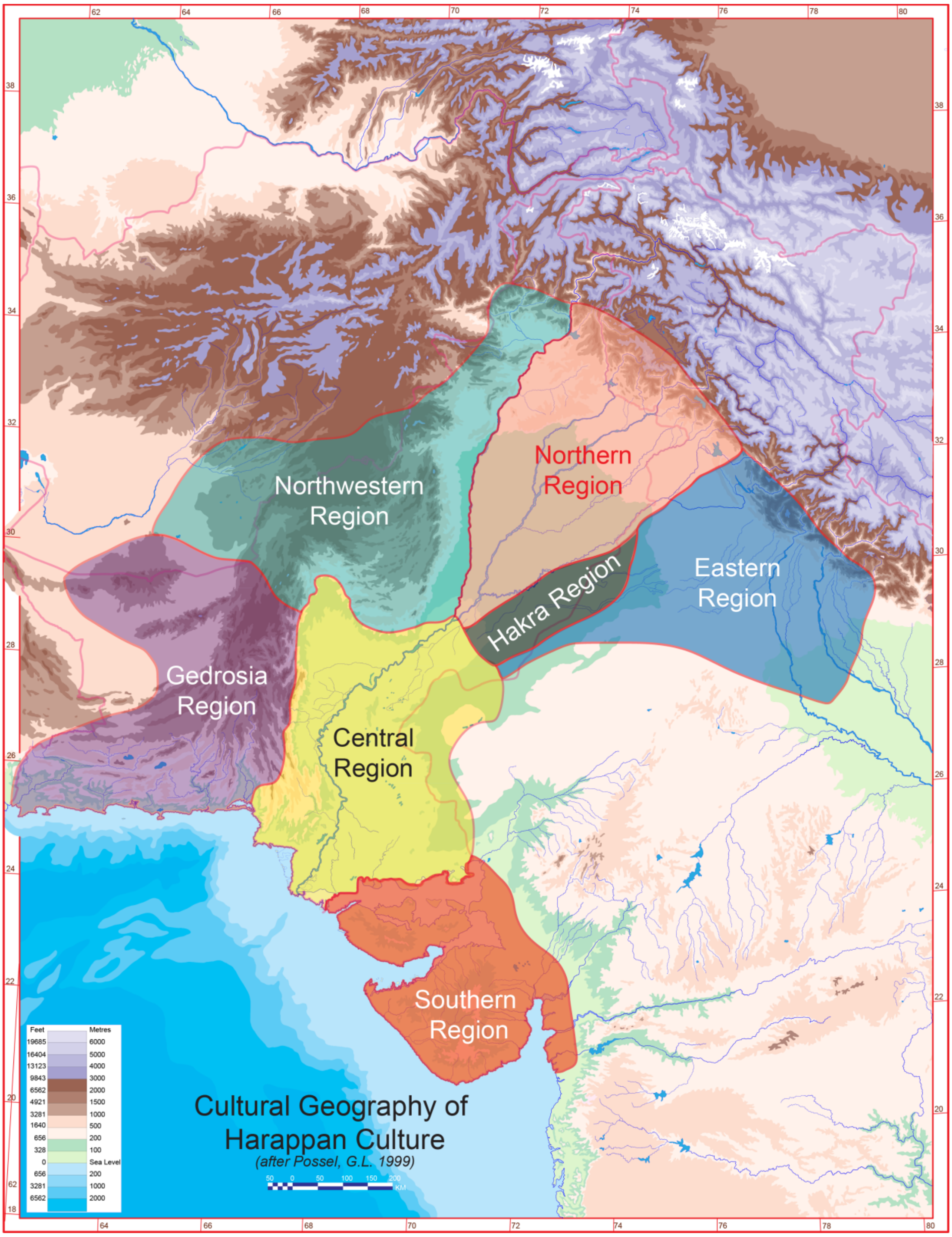


Fig. 3.10: Map showing the cultural geography of Harappan culture. *(after Possehl. G.L. 1999: 269)*

The above regions have its own sub-regions and consist of different drainage patterns, which played a large role in the settlement pattern of the Harappan sites. Each region has also its own set of mineral and natural resources that were exploited during the Harappan times in a bigger way and some of the

resources were exchanged though a greater distance. The most prominent sites in the Indus plain are Harappa, Mohenjo-daro, Kot Diji, Amri, Allahdino, Chanhudaro. As per Schuldenrein, the Indus can be divided into two hydrographic reaches: *"the Upper Basin, north and east of the confluence of the 'Fiver Rivers' (Jhelum, Chenab, Ravi, Beas and Sutlej) in the Punjab, and the Lower Basin extending through Sindh to the stream mouth at the modern delta and coast"*.[68]

The upper and lower basins cut through the alluvial deposits of Tertiary – Holocence age, and the Indus with its tributaries does not cut through the alluvial deposits continuously, due to several lateral movements all along the floodplain. These movements have accumulated several metres of Late Quaternary sediments, and thus formed are extensive, low relief alluvial plains, under which are buried channels which are difficult to differentiate.[69]

The Ghaggar-Hakra-Chautang (Sarasvati-Drishadvati) alluvial plain, which is located to the east of the Indus plain, is so far the densest and most extensive clusters of mature and late Harappan sites. The most prominent sites in this plain are Rakhigarhi, Banawali, Kalibangan, Ganweriwala. The Ghaggar-Hakra river system was a major active fluvial zone during the 3rd and 2nd millennium BCE. The capturing and recapturing of various river courses in this region contributed in a major way on the Harappan settlements.

The capturing of the Satluj by the Indus during mid 2nd millennium BCE from the Ghaggar-Hakra river system also might have caused the abandonment of large number of late Harappan sites.[70] The following figure gives a clear picture of all the geographic features surrounding the Indus and the Ghaggar-Hakra river systems, around which the majority of the Harappan sites flourished.

3.2.2 Palaeo-climatic conditions during Harappan Civilization

The palaeoclimatic investigations carried out by various scholars in western India indicate that the climatic conditions during the Mesolithic and Chalcolithic period was different from today's one.



Fig. 3.11: Map showing the geography of Harappan Region and beyond

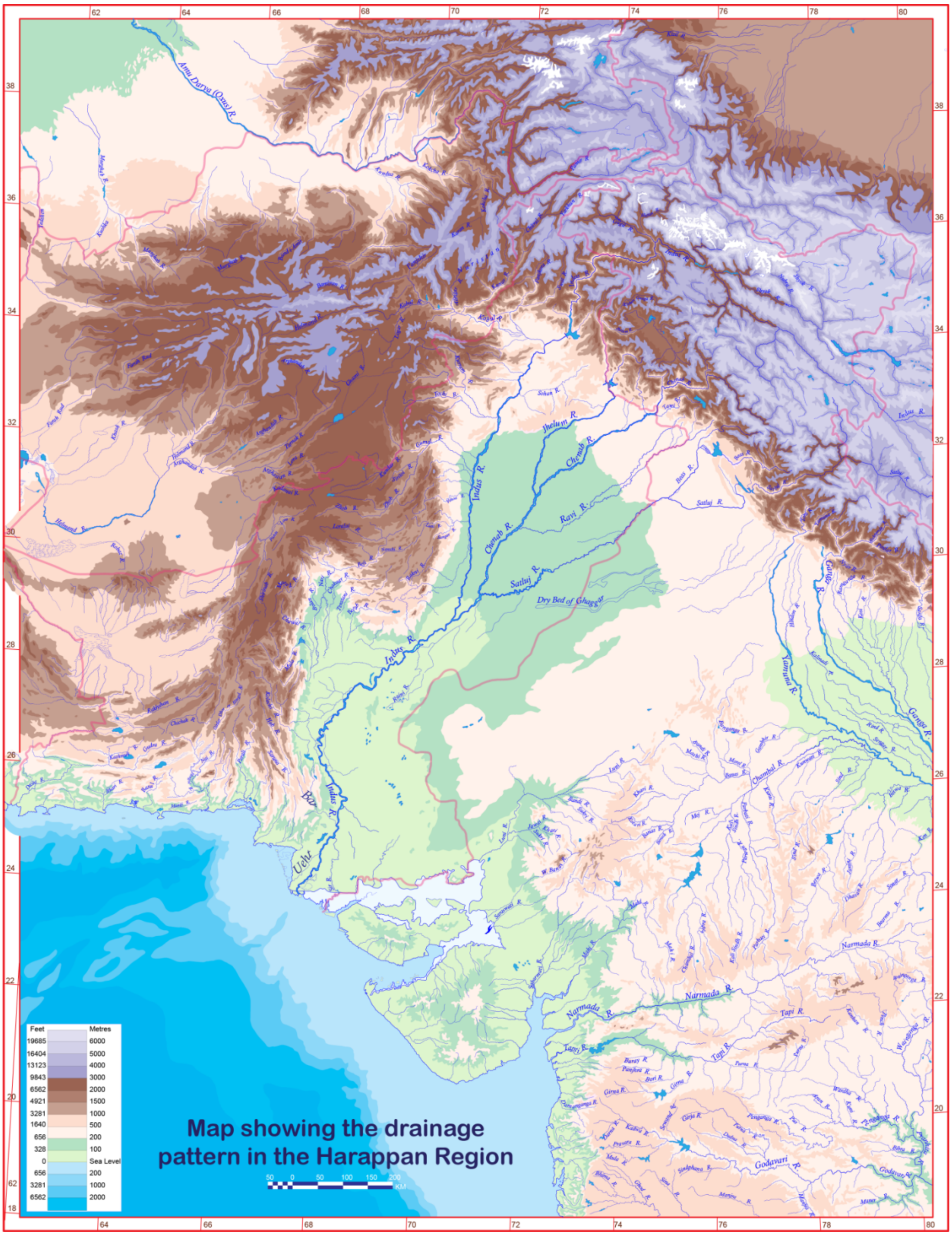


Fig. 3.12: Map showing the drainage pattern in the Harappan Region

The various attempts by scholars working on the palaeo-climatic patterns have also helped in its reconstruction from the Quarternary to Holocene period. The palaeo-climatic studies were basically carried out in the saline lakes of Didwana, Lunkarnasar and Sambhar in Rajasthan by Singh *et al.*; while Enzel *et*

al,. worked on the Lunkarnasar dry salt lake; Krishnamurty *et al.,* carried out studies on the lake deposits in Rajasthan and Shinde *et al.,* on the Sambhar Lake.[71] The results from all these studies have been summarised by Shinde as shown in the chart (Fig. 3.13) below.[72] The other areas where palao-climatic investigations were carried out are Sonmiani Bay near Balakot, Pakistan (1983) [*conclusion: "occupation during both cultural periods existed under essentially modern climatic conditions"*]; oxbow lake near Malwan (1973) [conclusion: *"pollen sequence suggests little environmental change"*]; Nal Lake near Ahmedabad (1978) [conclusion: *"lake level stability between 3000 and 1500 BC"*]; wood charcoal from Mehrgah (1985) [conclusion: *"little, or nothing to suggest higher rainfall in the past"*]; from the seed samples from Rojdi excavation (1991) [conclusion: *"environment during the third and early second millennia was significantly different from today"*]; Bannu Basin (1986) [conclusion: *"several lines of evidence point to the existence of moister conditions within the basin 3000 to 5000 years ago"*], Pakistan and in an oxbow lake in Pratapgarh district of Uttar Pradesh (1975) [conclusion: *"the general vegetational pattern is rather uniform"*].[73]

All the above studies are not unanimous as the reconstruction of past climatic and environmental conditions and its relationship with rainfall condition is rather a complex one. A section of scholars advocate a wetter environment during the third millennium BC when the Harappan Civilization flourished, while others indicate there was no marked difference in the climate and environment during the third millennium BC from today's one.

3.2.3 Distribution of Harappan sites

As mentioned elsewhere, the explorations carried out in various parts of India and Pakistan for over a hundred years have brought to light a large number of sites of the Harappan Cultures and those preceding and succeeding it. The site count stands at 477 for early Harappan; 1022 for Mature Harappan and 1281 for Post-urban Harappan cultures.[74]

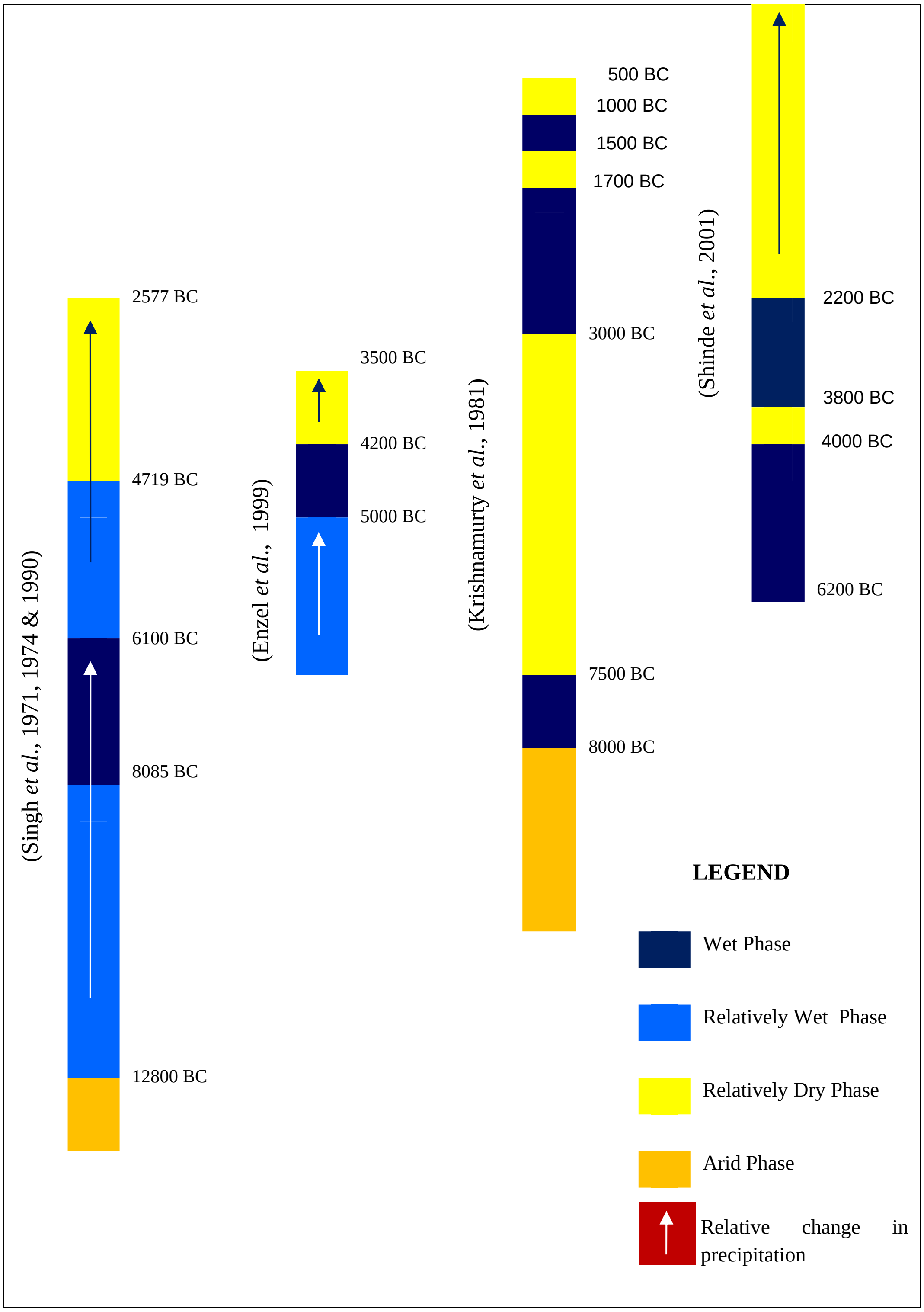


Fig. 3.13: Schematic representation of palaeo-climatic data in the western India (from Shinde 2004: 388)

These are spread across various spatio-temporal circumstances. Of all the sites known to us, only five sites can be in the real terms classified as cities, and

which all measure in area above 60 ha. They are Harappa, Mohenjo-daro, Rakhigarhi, Ganweriwala and Dholavira. Nearly 90% of the sites measure less than 5 ha in size and they can be termed as rural or town or village settlements. Thus, the settlement pattern clearly indicates larger settlements supplemented and complemented medium sized and smaller settlements.

The accompanying maps (Figs. 3.13 – 3.17) and charts (Figs. 3.18 and 3.19) give a fair idea of the distribution pattern of the Harappan sites. The distribution maps show clearly the areas under occupation and expansion during the early, mature and later / post-urban phases of the Harappan culture.

The gradual shifting of sites towards the eastern direction in the modern states of India like Haryana, western Uttar Pradesh, and Punjab also coincides with the drying up of River Sarasvati which is marked by the present day dry river bed of River Ghaggar, active during the monsoon season.

3.3 A brief analysis on the Harappan and Late Harappan burial customs

The evidence of burials and skeletal remains of the Mature Harappan and Late Harappan periods have been found from many excavated sites. The chief sites that have yielded skeletal remains are Harappa, R-37 cemetery site which yielded Mature Harappan burials and Cemetery-H site which yielded late Harappan burials, Kalibangan, Lothal, Rupnagar, Dholavira, Farmana, Mohenjo-daro, Surkotada, Sanauli, Chandigarh, Rakhigarhi, etc.

The burial remains from these sites and an analysis of their typology indicate a multivariate traditions and customs in the system of burials. The analysis of the skeletal remains from sites like Harappa, Mohenjo-daro and Lothal indicate that heterogeneity rather than homogeneity characterised the ethnic profile of the ancient Harappans.[75]

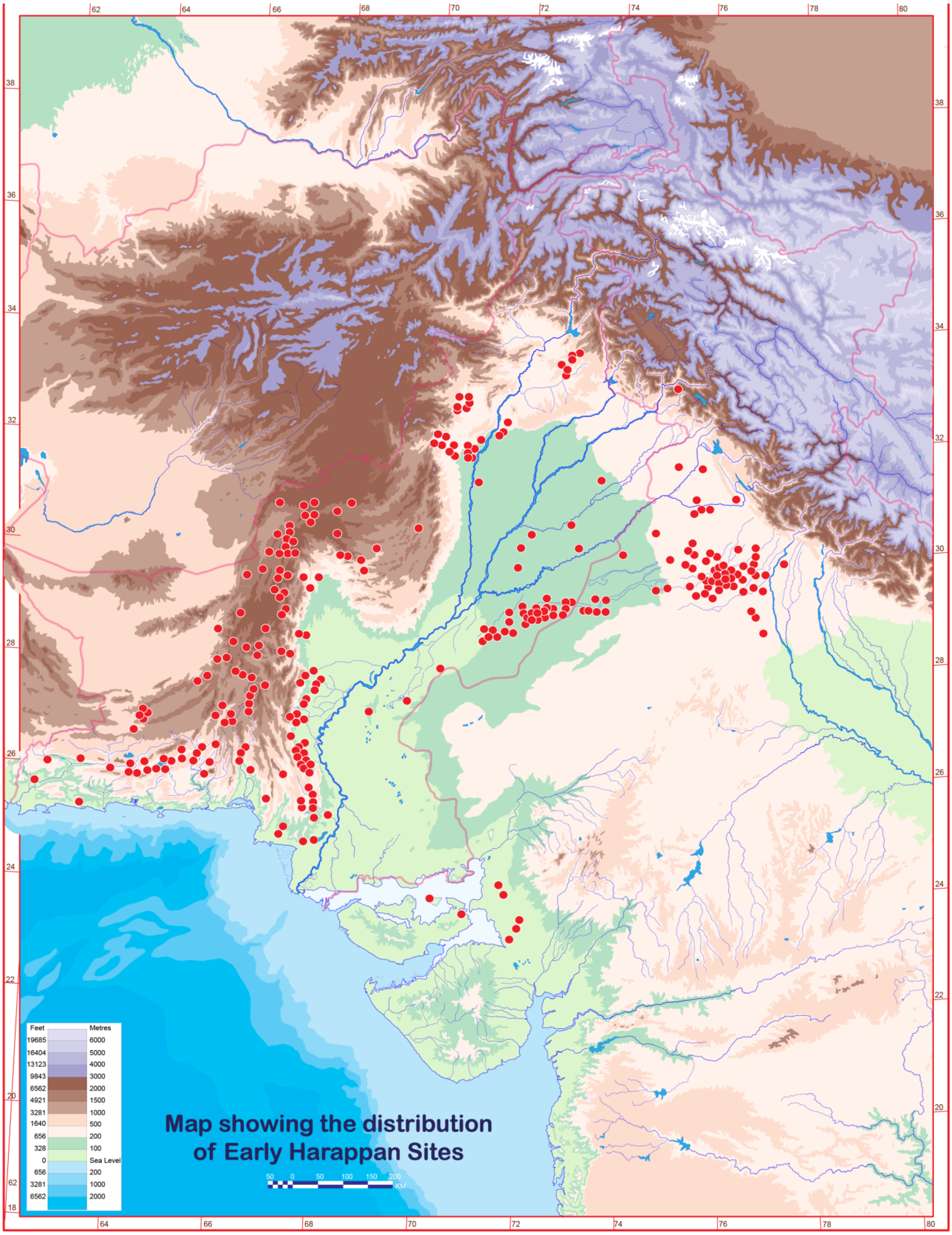


Fig. 3.14: Map showing the distribution of Early Harappan sites

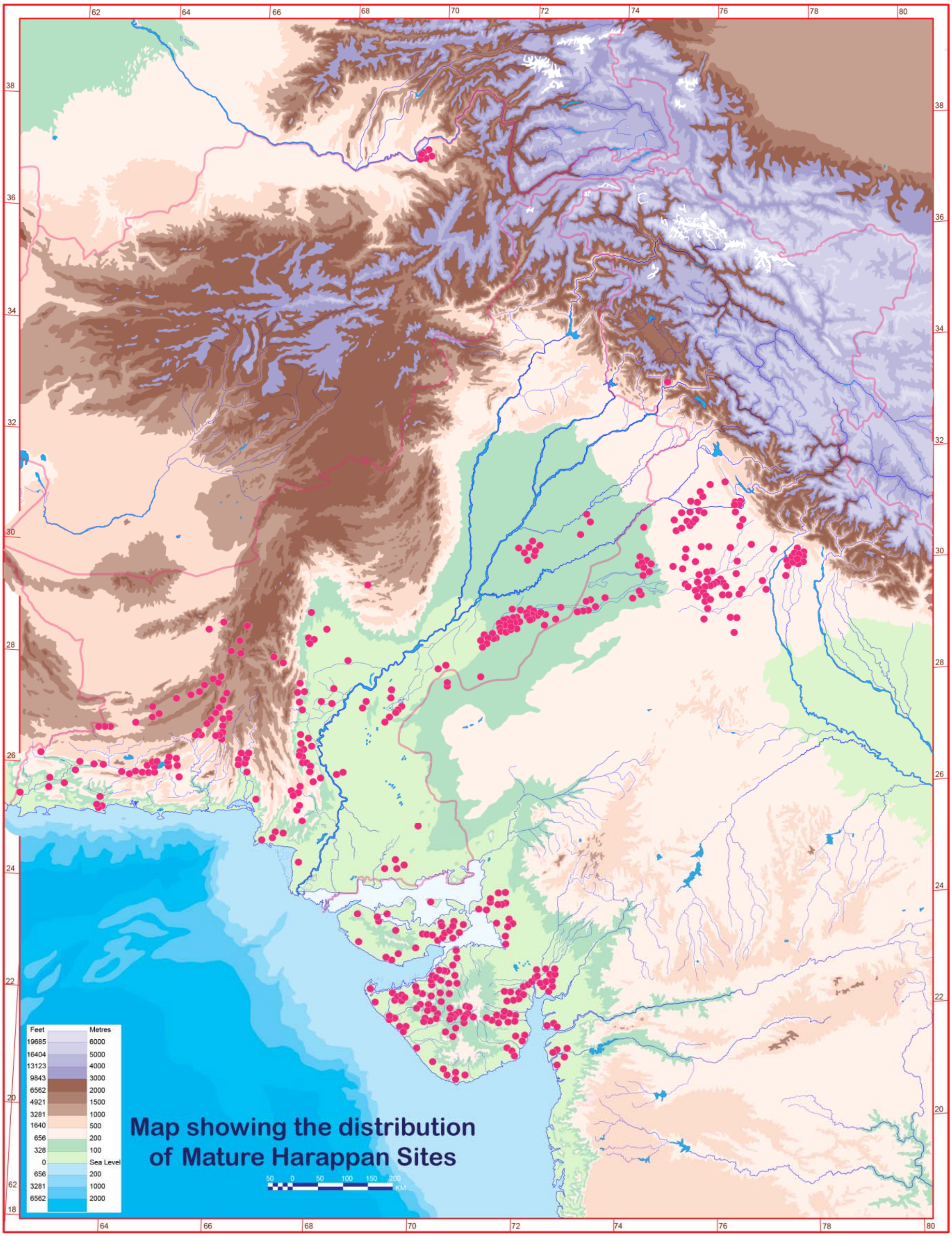


Fig. 3.15: Map showing the distribution of Mature Harappan sites

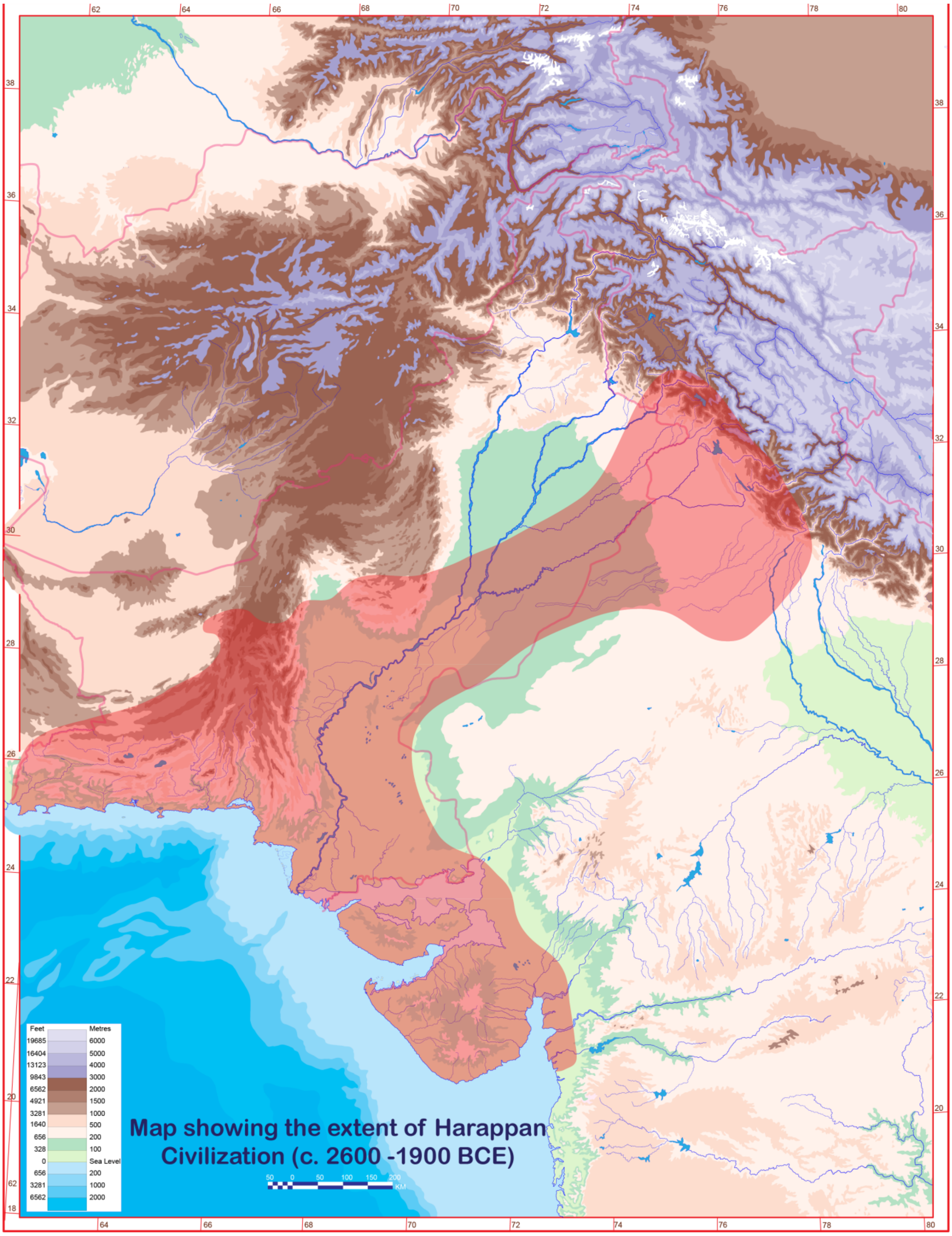


Fig. 3.16: Map showing the extent of Harappan Civilization (c. 2600 – 1900 BCE)

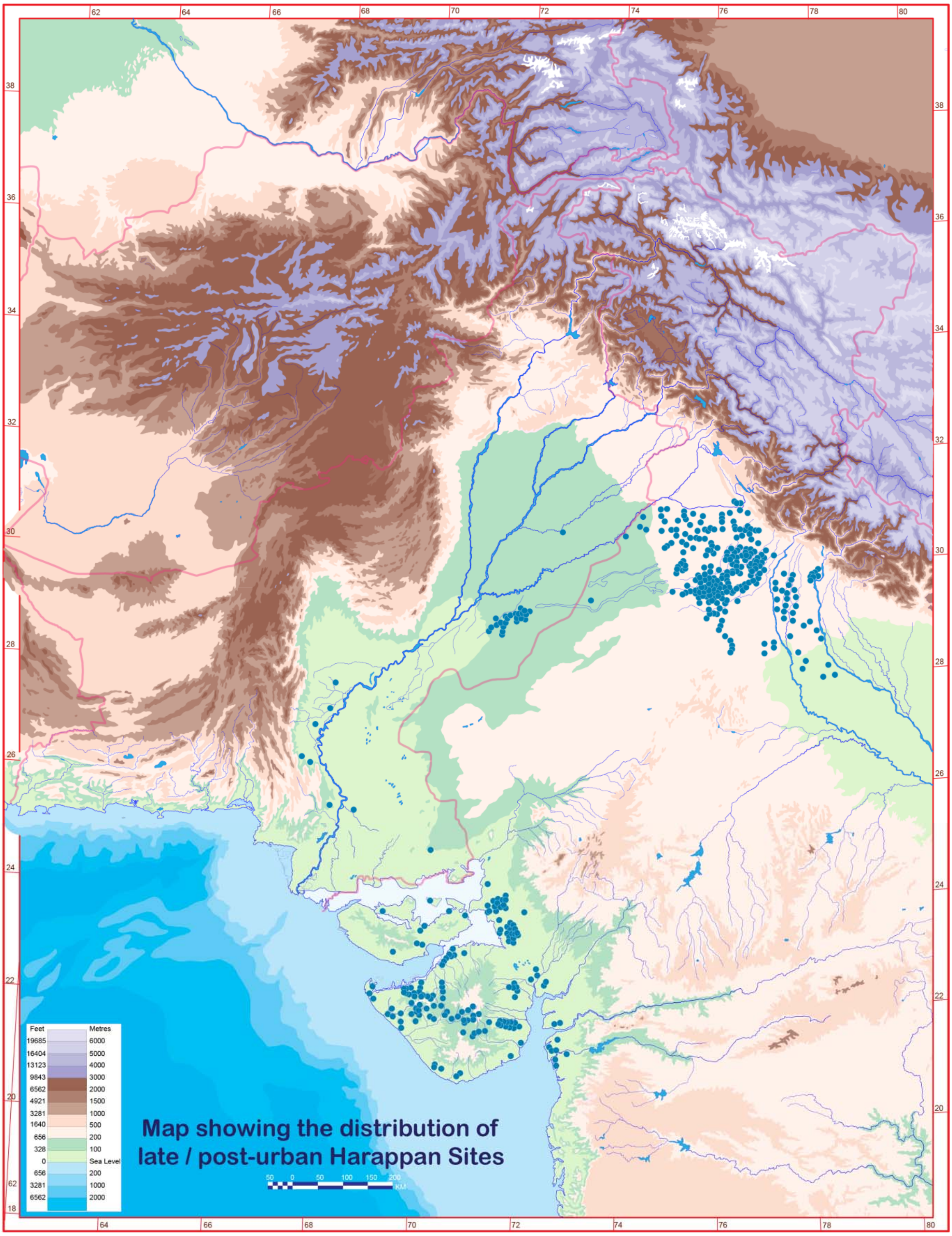


Fig. 3.17: Map showing the distribution of Late / Post-urban Harappan sites; the map includes the PGW, OCP sites also; the marked shift of sites towards the east and south of the Indus Valley is clearly noticed

Fig. 3.18: Chart showing the site count, settled area in ha and average size in ha of sites during different cultural stages (*data from Possehl: 1999*)

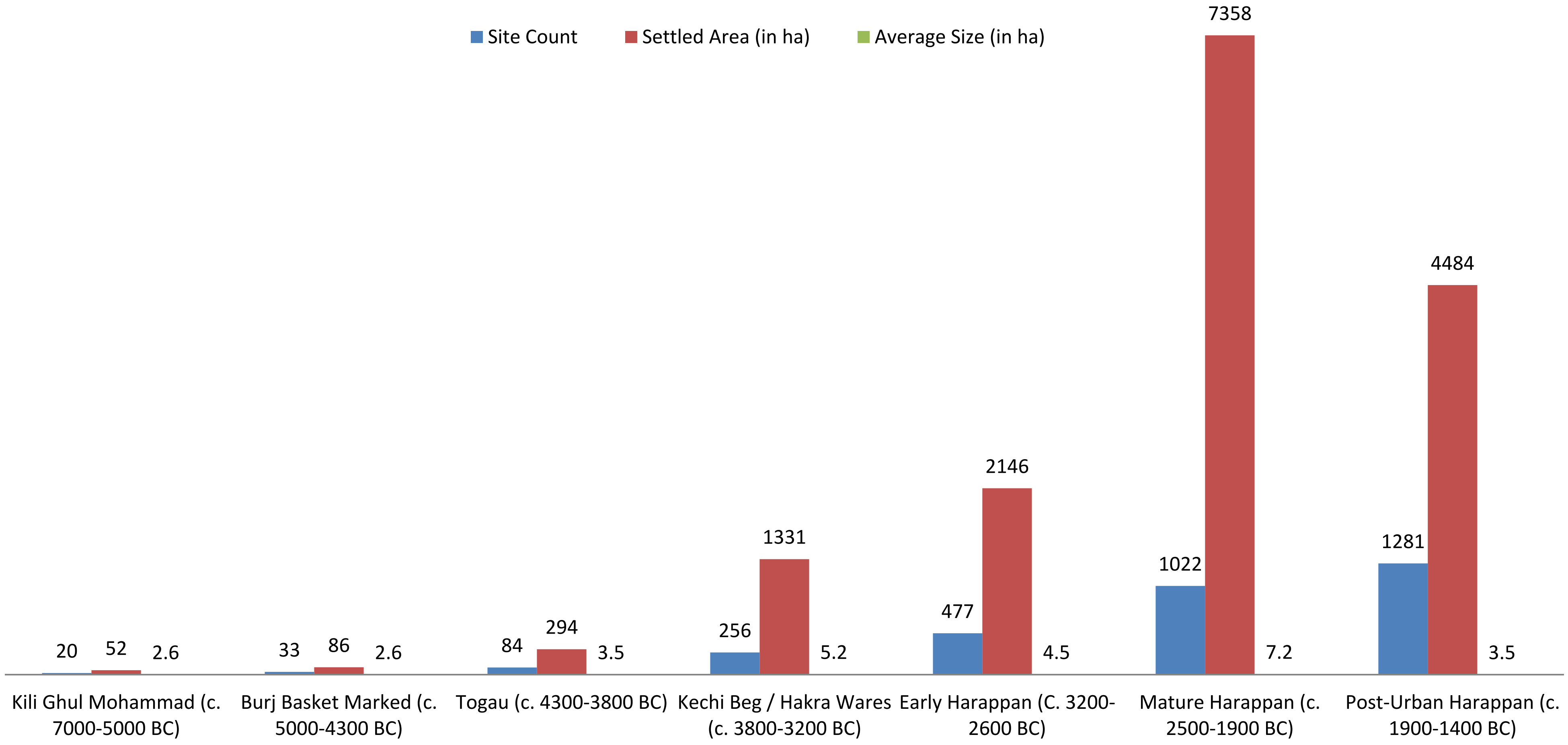
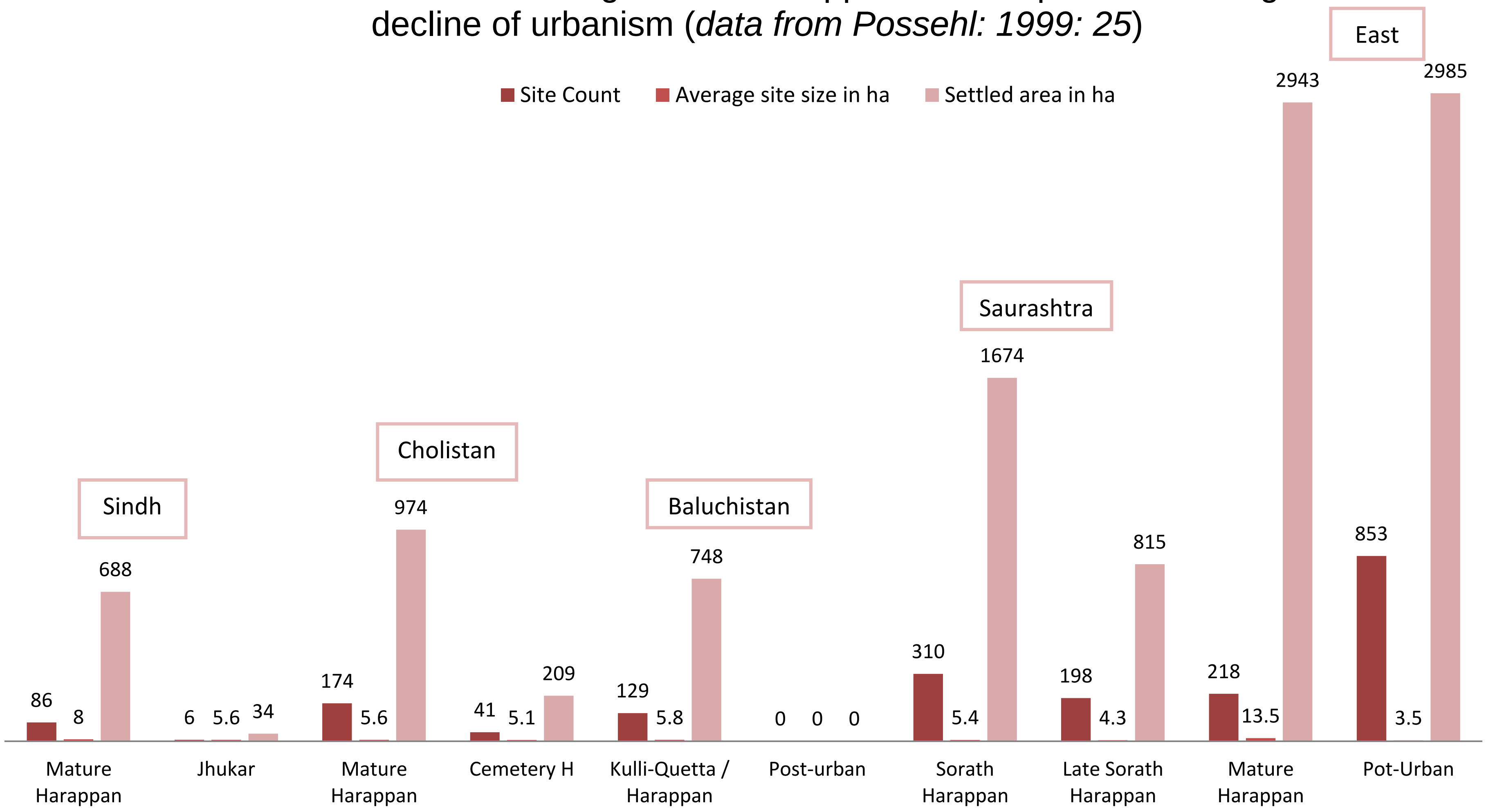


Fig. 3.19: Comparative nature of sites in terms of count, average size in ha and settled area in ha during Mature Harappan and the period following the decline of urbanism (*data from Possehl: 1999: 25*)



Several scholars have studied the biological characteristics of the Harappan burials and Possehl makes the following observations on the biological affinities of Mature Harappans and their predecessors:[76]

1. *All Indus sites, except Mohenjo-daro and Lothal, were inhabited by people with relatively strong affinities to one another. Individuals from Mohenjo-daro are somewhat different in their biology than individuals from other Indus sites.*

2. *There is an affinity between the individuals in Mature Harappan Cemetery R-37 and those in the lower interments of Post-Urban-Stage Cemetery H; however, both of these samples are different from those in the upper stratum of Cemetery H.*

3. *The individuals from Cemetery R-37 have their closest affinities with the individuals from Periods III through VII at Mehrgarh.*

4. *There may be some kind of biological discontinuity between the individuals from Period I and II of Mehrgarh as compared to Periods III through VII.*

5. *The population of Periods I and II at Mehrgarh has rather close affinities with the Deccan Chalcolithic, as seen from data on skeletons from Inamgaon.*

6. *The skeletal series from Sarai Khola is closely affiliated to that from Iron Age Timargarha.*

The above observations indicate that the biological composition of Harappan burials is rather complex and very difficult to understand. The ancient Harappan population might have "*witnessed demographic shifts of ethnic enclaves in commerce as well as the continuing urbanization of sectors of the population derived from rural towns and villages and from areas of relative isolation occupied by tribal groups. Many of these hunter-gatherer peoples formed symbiotic ties with sedentary, food-producing populations in the course of their eventual socialisation to more complex urban life*".[77] This is very well reflected in the nature of disposal of the dead as diverse burial customs were

followed while internment of the dead during the Harappan as well as the Late Harappan periods.

3.4 Harappan Burial Repertoire

Normally, the Harappan burials are found away from the settlement, either on the west, southwest of the settlements. At Harappa, both the R-37 and Cemetery-H burials are found to the south-southwest of the settlements, while at Dholavira it is found nearly 200 m west of the settlement area. This is very much distinguishable from the Chalcolithic burials of the Central India and Deccan, where the burials are found below the floors of houses.[78] The large number of burials excavated so far from the Harappan and Late Harappan sites constitutes a count of over 500 individuals.[79]

The burials from the Harappan sites may be broadly classified into inhumation or primary and non-inhumation or secondary burials. Normally, the Harappans burials are found in a north – south orientation, although some exceptions are found as at Rupnagar, where the orientation is northwest – southeast.[80] The orientation of Sanauli burials is also from northwest – southeast. The burials were normally interred in unlined pits, without any demarcation on all sides. However, some of the sites like Harappa, Lothal, Kalibangan, Dholavira and Sanauli have yielded exceptions with lining all around the burials. These kind of instances are also rare and not a commonly occurring one.

The examples from Kalibangan and Lothal have mud-bricks lined all around the burials, while only one burial at Sanauli yielded evidence of mud-brick lining. As this burial was disturbed in the past the evidence of this mud-brick lining all around had been obliterated and hence could not be found. A unique burial from R-37 area at Harappa yielded a lady burial with a coffin of rosewood covered by a lid made from deodar wood. The burials from Dholavira is an exception in the sense that here, some of the burials were found lined with limestone slabs all around, and even capped with a huge limestone slab to mark

the grave (Fig. 3.20). These burials from Dholavira often remind of the types we commonly encounter from the megalithic cist graves.



Fig. 3.20: A burial type from Dholavira, district Kachchh, Gujarat, with limestone lining and a capstone

Evidence of urn burials have also been found, examples being Kalibangan which were placed in circular or oval pits. One example at Kalibangan is a rectangular pit with a north-south orientation and containing only pots, without any skeletal remains. The urn burials at Kalibangan were found concentrated to the north of the cemetery area and distinguished from the other inhumation burials. Thus it is observed that different burial repertoire coexisted at the same time indicating the diverse burial rituals and practices, which might also reflect the diverse ethnic population of the times.

3.5 Nature of disposal of dead

As seen above, the burials of the Harappan and Late Harappan period were either placed in a north – south or northwest – southwest orientation. The burials may be a primary one, one with complete skeletal remains of the dead person, or a secondary one, without any skeletal remains, or in some instances scattered bones. This may be due to several reasons, disturbances in the past due to repeated use of the cemetery area, or disturbances caused due to removal of valuable things, as often found in the royal graves of the Egyptians. The burials may also symbolic ones, like the ones encountered at Sanauli, which neither contain complete nor fragmentary skeletal remains. These symbolic burials

contain a mere representation of a human torso, which at times containing personal belongings of the dead person. The burials were often found with either elaborate or simple burial goods, in the form of various kinds of pottery, personal belongings of the dead person. The analysis of various kinds of burials indicates that before actually interring the dead person, a rectangular pit was dug to a considerable depth. Once the pit was ready, certain rituals were performed and the burial furniture was placed as per the order or sequence provided in the customs and traditions. The burial pottery was also arranged in such a way that certain pots were placed at the northern portion of the burial pit, well beyond the head of the dead person, and also certain pots were placed right at the centre of the burial pit. The evidence also indicates that the dead body was actually placed above these burial pots, which were placed at the central portion of the burial pit. The placing of the dead body inside the burial pit also varies from site to site and also at times within a site itself. The dead person was normally laid down in supine position; however, at times evidence for flexed, crouched, position is also noticed. At times the dead body was also placed with the head faced towards the east; while in certain cases the head is placed in a raised position in comparison to the body.

The hand and leg position of the dead body also varies as noticed from various examples. In some cases, the hands are folded and kept over the hip, while some female burials had their hands kept cross-holding, with one hand crossing body and holding the other hand. The evidence of disposal of dead through burying may be only fractional keeping in view of the large population vis-à-vis the number of burials actually encountered. Hence, it may be presumable that apart from burying the dead, a section of the Harappan population also followed other kinds of disposal, for example, cremation. Evidence for cremating the dead has also been found from the excavation of Harappan sites, for example, at Tarkhanawala Dhera,[81] a Mature Harappan site in Rajasthan. The inference for cremation is also found from other sites like Mohenjo-daro, Chanhu-daro, Harappa and Baluchistan sites from the post-cremation urns. The details of these sites are discussed in Chapter 4.

3.6 Burial Furniture





Fig. 3.21: General typology of Mature Harappan burial pots; both painted and unpainted



Fig. 3.22: General typology of Mature Harappan burial pots (unpainted)



Fig. 3.23: General typology of Mature Harappan burial pots (painted)

The burials are often found with burial furniture consisting of earthenware of various kinds, personal belongings like beads, bangles, necklaces, headgear, etc. The nature and diversification of the burial furniture reflects the social status of the person buried and also the belief in the life after death. The general typology of the burial pots consists of storage jars with lids, elongated vases, bowls, dish-on-stands, goblets, etc. These pots could have contained essential

food items and grains that might have required for the afterlife of the deceased person. Parallels in literature have to be analysed and interpreted for the correct understanding of the actual items that might have placed in these pots. A detailed analysis of the various literary references to the disposal of dead in given in Chapter 6 to have an idea of the past customs and practices in the disposal of dead.

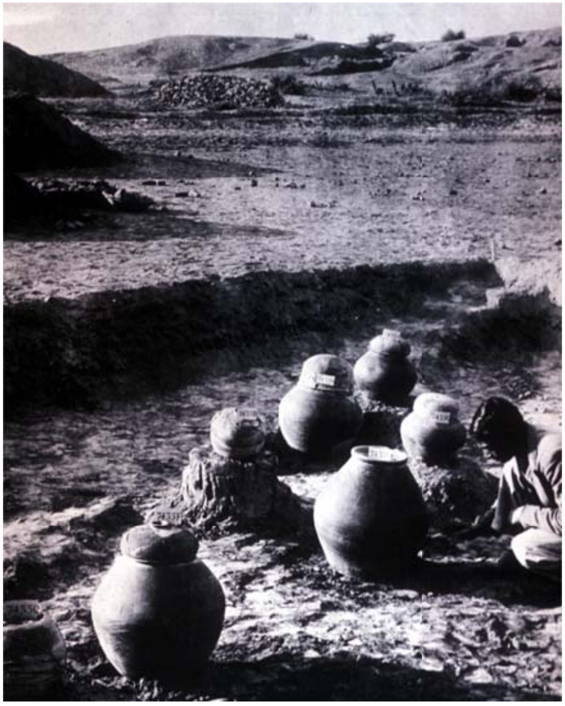


Fig. 3.24: Remains of the Late Harappan burials from Cemetery-H site, Harappa

The dead body is often found with the personal belongings of the person interred in the burial. For example, the various burials from different sites have brought to light items, both simple and elaborate in nature. The burials have yielded beads of semi-precious stones, bangles of copper, shell, etc., rings, micro-beads of steatite, kohl sticks, bronze mirrors, necklaces, etc. So far, the evidence from Sanauli may be considered as the richest among the burials found from other sites. Sanauli has yielded antiquities of both copper and gold, in addition to the normally occurring beads of semi-precious stones, steatite, faience, etc. The nature of the burial goods thus, reflect the social status of the dead person and it

may be deduced that the persons of elite status have elaborate burials with rich burial goods, while others have simple burials with less burial goods.



Fig. 3.25: Pottery typology of Late Harappan burials from Cemetery-H site, Harappa





Fig. 3.26: Pottery typology of Late Harappan burials from Cemetery-H site, Harappa

3.7 Exotic Items

The burials also contained exotic items, which may be described on the basis of its value and importance during the period of its inclusion as a burial good. The exotic item may be of gold bangle, beads or special beads, for example, long barrel carnelian beads, bronze mirrors, shell bangles, etc. As these items are not normally found in the burials these may be placed under the category of exotic items. Otherwise, each and every burial usually has the burial pots invariably placed in them. The other exotic items are an addition reflecting the social status and importance of the dead person. Hence, the presence and

absence of exotic burial goods are a clear indication of the status of the dead person. The best examples are from Harappa Cemetery R-37, where many female burials were found with copper / bronze mirror. Another male burial from the same area yielded an elaborate necklace with 340 graduated steatite beads and three separate pendant beads of natural stone and three gold beads. Another burial contained an unusual hair ornament made out of numerous strands of tiny steatite micro beads twisted together in circlets or bunches, with two or three shell rings and a jasper bead.[82] Precious metals, gold and valuable stone beads were held in high importance in the past societies and hence were circulated among the generations together. Hence burials with such findings indicate the importance of the person interred in terms of his social and ritual status. This has been interpreted by some scholars as an inference on the practical attitude towards material wealth and symbols during the Harappans.[83]

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Chapter – 4

Survey of Burial Remains From Harappan Sites

4.1 Introduction

In the previous chapter, a survey of disposal of dead since prehistoric times as gleaned from the archaeological records was made. The survey included the entire Indian sub-continent from the Mesolithic period onwards. The survey helped in understanding the various modes of disposal of dead in different eco-zones and cultural contexts. The survey also indicated that the nature of internment varied from simple pits to chambers to urns and the position of skeletons varied from extended to flexed to fractional. It has also been noticed that in a majority of cases, the orientation of the burials are in north – south to northeast – southwest to northwest – southeast and in a few cases the orientation is from east – west or west – east. It is also observed that most of the burials are furnished with burial goods in the form of pottery and in a few cases; the burial goods also contained personal ornaments.

This orientation, variation in the burial goods is clear indicators of socio-religious status and beliefs. While the orientation acts as a clear indicator of certain religious beliefs, as the position of skull at the northern end of the burial pit is intentional and not by chance. It is very difficult to assign any particular reason for the orientation, but nevertheless it is befitting to assume that it certainly was carried out with some religious and cultural beliefs and customs. Similarly, the variation in the number and nature of burial goods is a clear indication of the social status of the particular individual interred in the burial. The burial goods will also help us to understand the cross-cultural connections and inter-relations as often finished products are found far from their place of origin of raw material. The rarer the finished product, the more significance and value it represents, and hence the importance in the social status of the person interred in the burial. These kinds of values could be assigned to the burials in interpreting the importance and status of the individuals.

In this chapter, the survey is continued into the formative stages of the Harappan Culture wherein different cultural elements have been documented in various

geographical zones of the Indus and adjoining river valleys, viz., Amri, Kot Diji, Sothi-Siswal, Anarta, to name a few. It is also well established that the integration of the different cultures during the early Harappan stage occurred around 2600 BCE to give birth to the full-fledged Harappan Culture. Hence, the survey will be continued into the Harappan culture and Late / Post-urban Harappan culture documenting the various modes of disposal of dead in order to understand the socio-cultural beliefs in a better perspective and to glean variations and stratifications within the society in terms of burial customs.

4.2 Formative Stages (Pre-Early and Early Harappan)

4.2.1 Sohr Damb / Nal

Sohr Damb / Nal (*27° 41 20.04″ N, 66° 18′ 29.88″ E*)is located 42 km west of Khuzdar in Baluchistan, Pakistan between the Indus plains and Iranian plateau.[1] The site was first studied based on the ceramics by Marshall[2] and later excavated by Hargreaves[3] while Stein reports on the findings from this site in his tours to Gedrosia.[4] Marshall reports that a collection of 59 pots in total was collected from Nal through a surface collection and a minor excavation carried out by one Mirza Sher Muhammad, and a representative collection was studied by him.[5] Marshall further concludes that the kind of pottery obtained from Nal was previously unknown and he tentatively dates them to pre-Christian era.[6]



Fig. 4.1: Pottery collection from Nal that were studied by Marshall

Hargreaves also records two more excavations at this site, the first by Hazara Pioneers in 1908 that brought to light about 250 vessels and artefacts, a part of which was sent to McMohan Museum, Quetta.[7] The second one was by the Sardar of Bizanjau

in 1924, which also brought to light some vessels.[8] Sohr Damb in the local language means "Red Mound" owing to the presence of reddish-burnt area towards the southern end.[9]

4.2.1.1 Hargreaves's Excavation

Hargreaves excavated six areas numbered from **A – G** at Sohr Damb / Nal in 1925. Hargreaves observes that the **"Area A"** for taken up for excavation which lies on the western side and close to the previous excavations because of the *most important discoveries were made (sic)* from this area.[10] Hargreaves also suspected that the polychrome vessels were of funerary in nature and not to be found from the entire mound.[11] The **"Area A"** yielded structural remains, the prominent among them being a huge structure of stonewalls containing 13 rooms and courtyards. The walls unearthed are categorised into three types, viz., Type A walls are built of *large, quarried stones from the neighbouring hills (sic),* Type B walls built of *large, roughly cubical or oblong boulders from river beds (sic),* while Type C walls are combination of Type A and B.[12] The excavations also brought to light the evidence of earth floors in most of the rooms, while at two instances pavements of small boulders and in one instance flooring resembling walls of Type A is noticed.[13] These walled rooms revealed the presence of large number of human burials of several methods of inhumation type in association with a large number of funerary potteries. Hargreaves has categorised the burial remains into *(i) Fractional Burials, (ii) Complete Burials in Defined Graves and (iii) Complete Burials without Defined Graves*.[14]

Fractional Burials

The characteristics of fractional burials excavated by Hargreaves and found from Trenches A (*A1, A6, A7, A12, E*) are as follows:[15]

1. Often found in groups and no skeleton of complete individual found; fragmentary bones like vertebra, tooth, 'long bone', etc., are found along with pottery remains;

2. **Group I in A1** consist of at least four adults and two children along with seven vessels in roughly east – west alignment, one of them contained a tooth, a vertebra and fragment of a bone;

3. **Group B in A6** consist of 32 vessels, 18 of which contained earth and remaining having bone or bone fragments mixed with earth all found in an area measuring 2.97 X 0.99 m; the intention internment of bone fragments inside the vessels is doubted by Hargreaves as they found near the top portion of vessels; 26 examples of fractional or incomplete burials recorded from this group; the bone fragments belonged to four individuals[16] (2 adults, 1 youth of 18 years and an infant of 1 year);

4. A1 also contains two more groups of burials, viz., Group C and Group H. Group C in A1 consist of seven groups identified main on the basis of close proximity of vessels and bones, even though it has also been recorded by Hargreaves that Group C3 and C4 are part of the same group and Group C4 and C5 are distinct due to the presence of two skulls.[17] The Group C was found in an area of 8.53 X 1.98 m and 0.69 m above floor level. The burials generally consist of bone fragments including skull portion and pottery.

5. The **Group H** burials were found approximately at a depth of 0.076 cm above floor level and below Group C consisting of six groups. Group H is separated from Group C by a sterile layer, and hence interpreted by Hargreaves that the former is earlier and independent of latter.[18]The burials consist of bone fragments, long bones, skull, animal bones, and in one case (Group H4) grinding stone and grinder.

6. **Group A in A2** consist of group of more than five pots, long bones, bone fragments, six skulls, mandible, and part of femur, all found in an area of 0.97 X 0.46 m and 0.41 m above floor level.

7. **Group D in A2** consist of a group of burial pottery without association of any human remains / bone fragments. The excavator concludes that these vessels could have formed part of burials the bone fragments of which disturbed by previous clearances / excavations.[19]

8. **Group E in A6**[20] consist of a group of funerary pots at its southwest corner along with fragments of mandible of an animal (sheep?), other animal bones and teeth. A notable find was a large open bowl containing five smaller vases interspersed with fragments of a rib, pelvic bone and fragmentary pieces. It was evaluated that this group contained at least five individuals.

9. **Group F in A7** consist of at least 11 funerary pots along with bones including a skull facing west. Among the funerary pots, nine contained only earth, 1 with bone fragments and in another pot was a smaller vessel, a bone, potsherds and a white bead.[21] An interesting find from this group was a stone chisel, an imitation of a metal one.

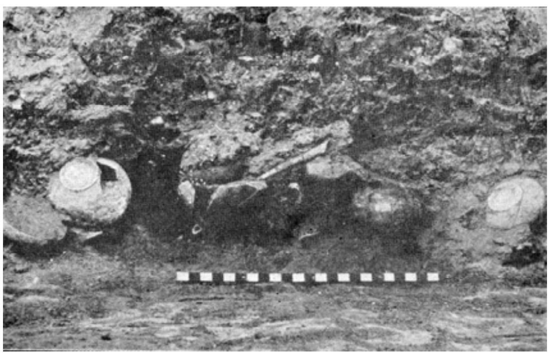


Fig. 4.2: Burial Group A, Sohr Damb / Nal

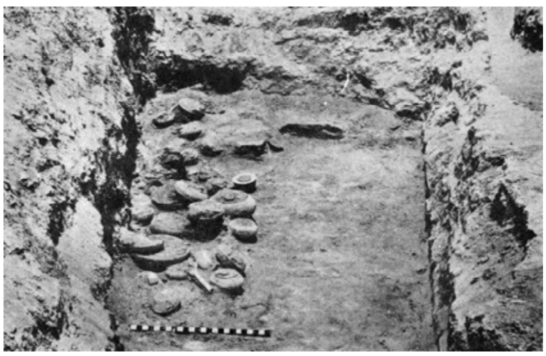


Fig. 4.3: Burial Group B, Sohr Damb / Nal

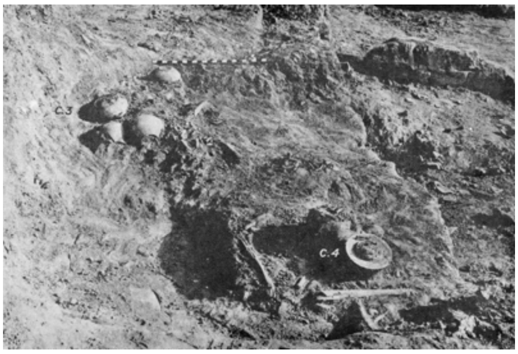


Fig. 4.4: Burial Group C3 & C4, Sohr Damb / Nal

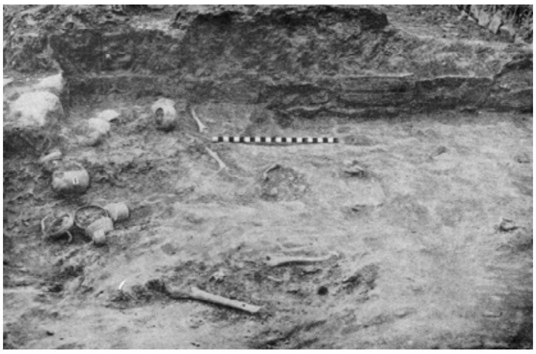


Fig. 4.5: Burial Group F, Sohr Damb / Nal

10. **Group G in A12** consist of a group of funerary vessels, in association with stone weight and pieces of bone.

11. **In Trench E**, was found remains of bones and pots, but not grouped together.

12. **In Trench A3**, was found three broken pots, one of which contained a smaller vase, while no bones were found.

13. **In Trench A7** was found fragments of ribs and small bones and one or two funerary vessels.

Complete Burials in Defined Graves

The examples of three complete burials in defined graves were excavated apart from the fractional burials mentioned above. The important features of these three complete burials are given below:[22]

1. The burial of an infant was found in A13, mud-brick covering of the chamber was found at a depth of 2.97 m. The mud-brick chamber was brought to light after removal of mud-bricks, and the chamber measured 0.58 X 0.41 X 0.28 m. The chamber contained bones of an infant, 16 beads and pear-shaped crystal pendant.[23]

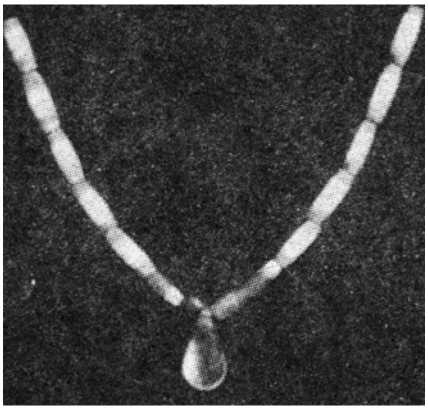
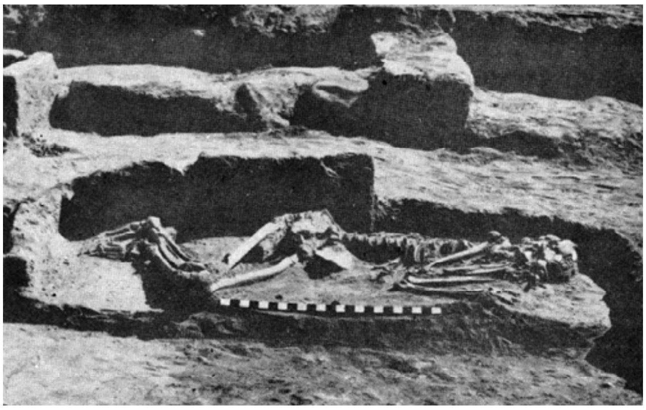
 

Fig. 4.6: Pear-shaped crystal pendant and beads from Infant's grave, Sohr Damb / Nal (*left*); Fig. 4.7: Complete adult burial in A7, Sohr Damb / Nal (*right*)

2. The complete adult burial was found in A7 in a *"barrel-shaped grave edged with mud bricks set on edge"*.[24] The grave measures 1.55 m in length, while the width at the eastern end is 0.61 m and 0.56 m at the western end.[25] The skeleton was found placed on the left side, with the orientation of east – west, head facing towards the south, both the arms bent and palm near the face, and the leg also bend upwards.[26] This burial is devoid of any burial goods including pottery.

3. Another grave[27] on an infant was found in A7 in the form of a mud-brick chamber measuring 0.76 X 0.58 m. The chamber contained fragments of bones, which on examination revealed the probably the complete remains of an infant. This burial was also devoid of any burial goods, as in the case of other two complete burials mentioned above.

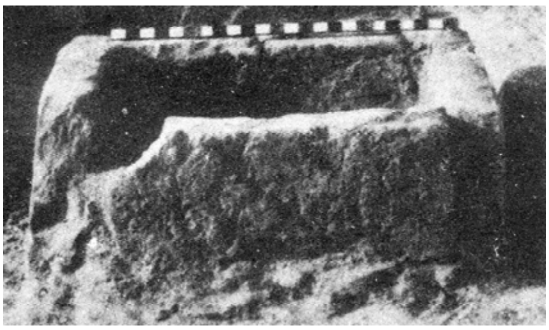


Fig. 4.8: Infant's grave in A7, Sohr Damb / Nal

Complete Burials without Defined Graves

Two burials[28] of this category was excavated, both belonged to infants. The first one was found in A13, near the infant's grave mentioned above, which belonged to an infant of about 1 year old, without any marked grave and funerary pottery. The noteworthy find from this infant's burial is the presence of 89 tine white disc beads (steatite?) below the skull approximating to the neck portion. Another infant's burial, most probably of that a new-born child, was also excavated to the southeast of the infant grave mentioned above, yielding only a small damaged skull along with a funerary vessel.

Among the noteworthy artefacts found from the necropolis area and could not be assignable to any particular burial are a grinding stone found with Group H4, marble ring stone between Groups C6 and C7, stone chisel from Group F, copper implements found near Group C7, A3.[29] The other interesting feature from the burials as recorded by Hargreaves are a piece of red ochre in one of the funerary pottery in Group G; a moulded little cake of red ferruginous earth in Burial H4; yellow ochre in A12 and cerrusite & galena on the floor of A3.[30]



Fig. 4.9: Funerary pottery, Sohr Damb / Nal

4.2.1.2 Renewed Excavations at Sohr Damb / Nal

The present site measures 280 m (N-S) and 170 m (E-W) covering an area of roughly 4.3 ha and rises to nearly 14 m from the surrounding area.[31] The excavation at Sohr Damb / Nal was renewed in 2001 under the joint collaboration of Department of Antiquities and Museums, Pakistan and German Research Society. It is said that Nal is the type-site for the archaeology of Baluchistan during the period from 4000 – 2000

BCE that is characterised by the pottery types of Togau, Kechi Beg, Nal, Quetta and Kulli-Harappan.[32] The excavations by the end of 2005 brought to light considerable evidence, which enabled to date the entire habitation at the site from 4000 / 3800 to 2300 / 2000 BCE.[33] The excavation also brought to light four cultural periods at this site, viz., ***Period I (Togau), Period II (Nal), Period III (Late Quetta / Sadaat) and Period IV (Late Sadaat / Kulli-Harappan)***.[34] The Period I, pre-dating the Nal occupation is represented by the Togau A, B, C & D and Kile Gul Muhammad pottery, black slipped sherds with white paint, wet ware, buff ware, etc.[35]



Fig. 4.10: Aerial view of the site of Sohr Damb / Nal, Baluchistan, Pakistan

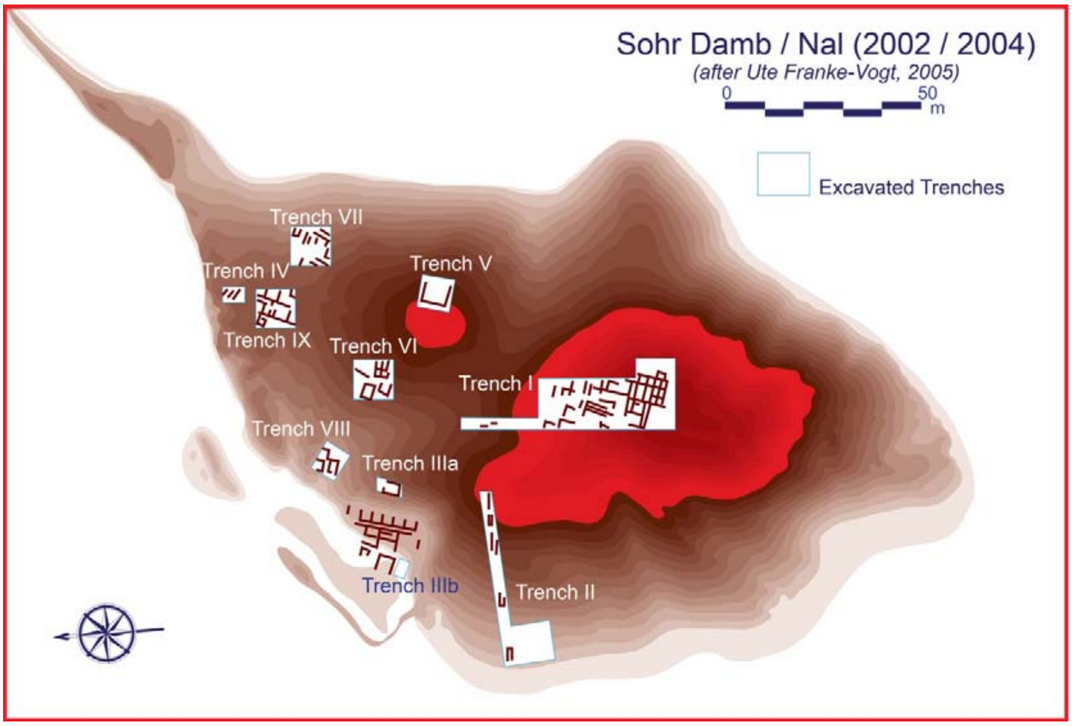


Fig. 4.11: Site plan of Sohr Damb / Nal, Baluchistan, Pakistan

It has been reported that these pottery types continues up to the beginning of Period II, with gradual changes in the slip from dark and bright to purplish red, increase in buff and appearance of Nal ware in the upper levels.[36] The remains of Period I was traced below the Hargreaves Trench and represented by a cemetery, which consisted of 11 tombs.[37] The tombs are found to contain multiple individuals buried inside them, the maximum number being 16 in one case. The tomb 739/740 was completely excavated which is a square chamber measuring 1.5 X 1.5 m and built of mud-bricks measuring 40 X 20 X 5 cm in upright position, brick and mud patches.[38] The height of the mud-brick walls vary from 30 to 60 cm and even the floors were also made of mud-bricks. The evidence indicates that the tomb was repeatedly in use as indicated here wherein after the first phase; a dividing wall was introduced on the western interior face.[39] The tombs contain multiple fractional burials and there is a mismatch between the number of skulls and individuals representing the body, with the former exceeding in number.[40]



Fig. 4.12: View of the upper layer of Tomb 739 / 740, Sohr Damb / Nal

The infants are interred in the vessels of Togau D and the adults, children and infants are buried together.[41] The burial goods consist of good number of pottery of different cultural complexes, namely Kile Ghul Mohammad, Togau C-D and Kechi Beg, which is interpreted by the excavator that *stylistic development schemes as chronological markers need to be restudied*.[42] The assemblage of Period I is compared with those from Mehrgarh III-IV, Shahi Tump and Sialk III, even though the variation in burial customs and grave goods is noticed.[43]

Period II at Sohr Damb / Nal saw considerable changes in the size of settlement to architecture and burial practices. This period saw the increase in size of settlement considerably and it reached the present size and is characterised by the typical Nal polychrome pottery with *"geometrical and figurative motifs painted in black, and often with turquoise, yellow and red as additional colours"*.[44]



Fig. 4.13: Pottery from Tomb 738, Period I, Sohr Damb / Nal

The cemetery area of Period I was completely occupied by filling and levelling the depressions with gravels and the area used for construction during this period which also resulted in the part destruction of necropolis. This period also marks the end of Togau pottery and continuation of black and red slipped pottery with white motifs.[45] The burial practices changed from multiple fractional burials to complete individual inhumations.[46]

The orientation of the burial is from east to west, the skeleton placed on its left with face towards south, both hands drawn upwards towards the face, very much similar to the complete burial excavated by Hargreaves. The radiocarbon dates from Period II indicate a time bracket of 3100 – 2700 BCE.[47]



Fig. 4.14: Burial from Period II, Sohr Damb / Nal

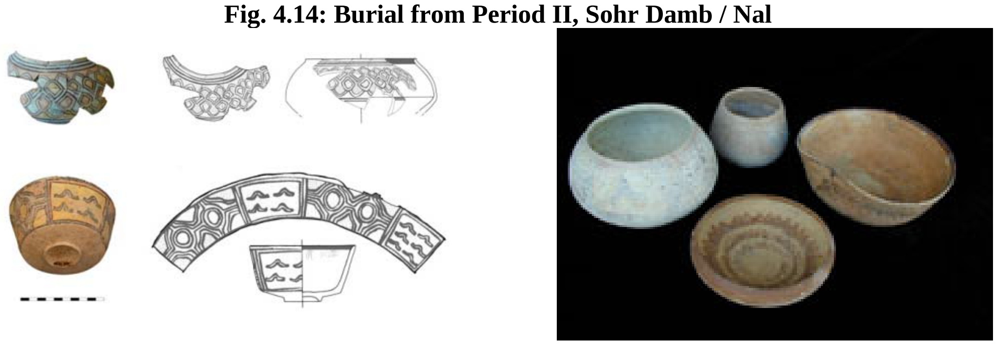


Fig. 4.15: Pottery from Period II, Sohr Damb / Nal

One of the burials belonging to Period II was found built on thin clay deposit and gravel layers with potsherds.[48] The grave is in the form of a chamber constructed with square mud-bricks set upright. The interior dimension of the grave is 1.35 X 0.55 m while the chamber is preserved up to a height of 28 – 42 cm. The position of the skeleton is described by the excavator as *"....undisturbed burial contained one individual laid on its back and then twisted and legs flexed towards left (south)."*[49] The burial is furnished with grave goods in the form of four complete vessels, one of them decorated with polychrome designs.



Fig. 4.16: Burial from Period II, Sohr Damb / Nal

Period III at Sohr Damb / Nal is noticeable after a short abandonment of the site post Period II during which the entire mound was not occupied and a portion of it was used as dumping ground. The architecture is also different from the preceding period, with rooms large and spacious, resting on gravel foundations and wooden beams, the most prominent among the buildings being the one referred to as "Burnt Building" by the excavators.[50] The polychrome and monochrome Nal pottery ended with the introduction of simple and plain pottery and different motifs. The radiocarbon dates suggest a time bracket of 2700 – 2500/2400 BCE for Period II.[51] **Period IV** is only noticeable on the surface and largely eroded which the Kulli – Harappan pottery style, represents. The radiocarbon dates suggest a time bracket of 2500 to 2300 BCE for this period. The absence of burials from the site during Period III and IV is a marked difference from the preceding periods, which indicate that the new occupants might have different socio-cultural beliefs and might have located their burials beyond the limits of the settlement. However, this could be substantiated only large-scale excavations of the site and probing possible areas for burials.





Fig. 4.17: Foundation wall with wooden log (left);
Fig. 4.18: Burnt building, Sohr Damb / Nal

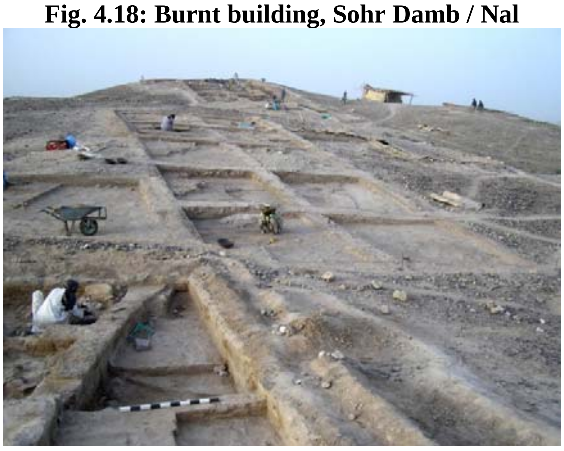


Fig. 4.19: Remains of Period III, Sohr Damb / Nal



Fig. 4.20: Ceramic styles of Period III, Sohr Damb / Nal

4.2.2 Shahi Tump

Shahi Tump (*26^0 00' 30" N; 63^0 00' 15" E*) is located in Makran near southern Baluchistan, Pakistan on the left bank of River Kech in the Kech Valley. Shahi Tump is 3 km west of Turbat and 3 km south of Miri Qalat, another proto-historic site across the River Kech. The site measures 80 m in diameter and rises to a height of 8 m from the surrounding plains and locally known as Shahi-Tump Damb which is on the edge of the village in the oasis.[52]The site was first investigated by Sir Aurel Stein in 1928.[53]

4.2.2.1 Investigations by Aurel Stein

Stein records the height of the mound to around 8.23 m in 1928 and observed that the height was much higher before the top of mound was levelled for building a small platform for prayers.[54] Stein also records several surface finds, which include pottery, alabaster bowls and cups, chert blade or scraper, perforated pottery, etc.[55] Stein excavated a long trench of about 5 m in width from the eastern foot of mound to its centre, which was extended into further westwards due to the presence of a small burial ground.[56] The excavations brought to light the remains of walls constructed of rubble set in clay mortar, loose stones from the riverbed, and mud bricks.

The remains of complete burials were also brought to light in the excavation. The pottery mainly consists of red ware with a dark red slip on the surface with black geometrical patterns executed on the exterior, grey ware with painted geometrical motifs.[57] The artefact finds include that of terracotta humped bulls, stone blades, bangles of clay and shell, copper and metal objects including an ornament or stamp of copper.[58] The presence of burials was discovered when the excavation near the southwestern corner and at a depth of 1.53 m from the surface. The characteristics of the burials found from the excavation are given below:[59]

1. The first find was that of a large crushed and broken urn 0.36 m diametre at the widest containing the fragments of charred bones including that of a sheep or goat mixed with ashes and earth. The other finds include a glass bangle, triplet of small bowls, and a series of small bowls, cups and dishes, mostly of grey ware with painted decorations with an alabaster cup.

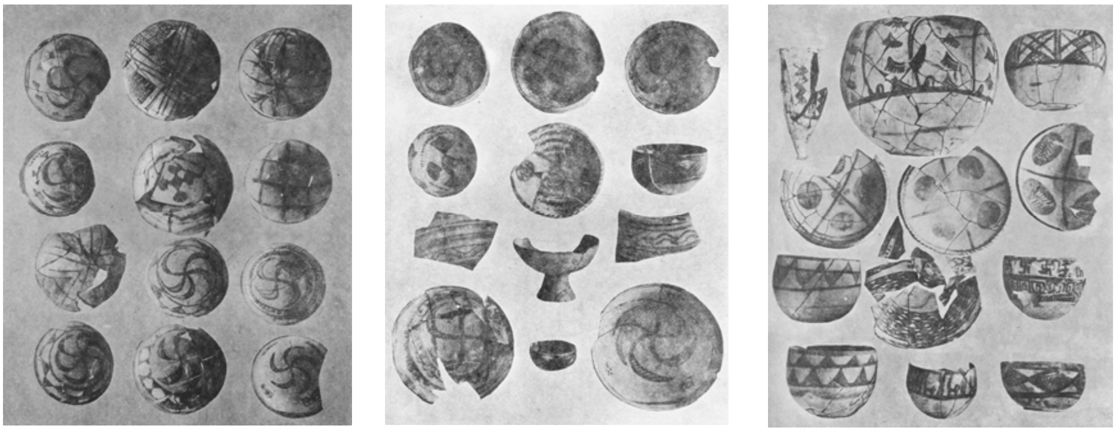
2. Another cluster of bowls and cups was exposed to the southwest of above at a lower level, and underneath it was found a badly preserved human skeleton, the legs bent at the knees and both the hands drawn towards the chin. The orientation of the body is from west – east. The burial goods include that of pottery, a metal utensil, patera-like cup, bronze ornament, etc. The burial pottery consists of *"……closed packed cluster of pots, bowls, cups and jars."*[60] The painted pottery from the collection is compared with sites of Zhob or Sutkagen-dor and Nal pottery.

3. Two more remains of human skeletons were excavated at a depth of 1.83 m from the surface and near the northeast corner of section. The first one is laid in a west – east orientation and barely 0.61 m south of above, another body was found in an east – west orientation. The position of the skeleton is also noteworthy. The first skeleton was laid on its left in west – east orientation, with the skull facing north, both the hands drawing upwards towards the chin, while the legs are bent at the knees and drawn upwards resembling a seated position. The first skeleton was placed on a prepared bed of rough pebbles. The second skeleton was found lying in its back, head turned towards south, right arm resting on right leg and left arm near the chest. The placing of funerary pottery is noteworthy here. The highest concentration of beakers, bowls and cups was found all round the head and at the back of upper portion of first grave. The funerary pottery was also placed near the feet, but in the case of second grave, it was scattered all over and around. The majority of the pottery is of grey ware and almost all are painted. The other finds from the first burial include that of copper ornament, spinet or ruby polygonal bead, flint blade, terracotta bull figurine. The second burial was found to be more richer which had the remains of 19 stone beads, mostly of agate and lapis lazuli, onyx; several small beads of stone and bone found near the chest; small rounded stone balls of uniform size near the shoulder portion; stone blade in a bowl, copper spearhead, a massive copper axe-head.[61]

4. Two large funerary pots containing ashes and fragments of animal bones and devoid of any human remains were found adjacent to a mud-brick wall and 0.30 m below surface. Another child burial was found in association

with seven small bowls and jars. To the south of the child burial was also found two small bowls with fragments of a small copper ornament and bone bead. A cluster of three burials was excavated to the west of above near the surface in an east – west orientation. The burial pottery consists of small bowls and jars, squashed bowl, placed on the body. The artefact find found in association with the burials is a small copper stud.

5. In an area to the north on the sloping ground was found three burials with only funerary pottery, while a fourth burial had remains of a skeleton, all found at varying depths from 0.91 to 2.44 m from the surface. Another cluster of 10 coarsely painted potteries was found without human remains to the west of the fourth burial mentioned above. The remains of two skeletons were found also found, one of which was that of a child. The burial goods consist of a copper disc placed on the body, with a copper stud at its centre, similar to those already found and mentioned above.



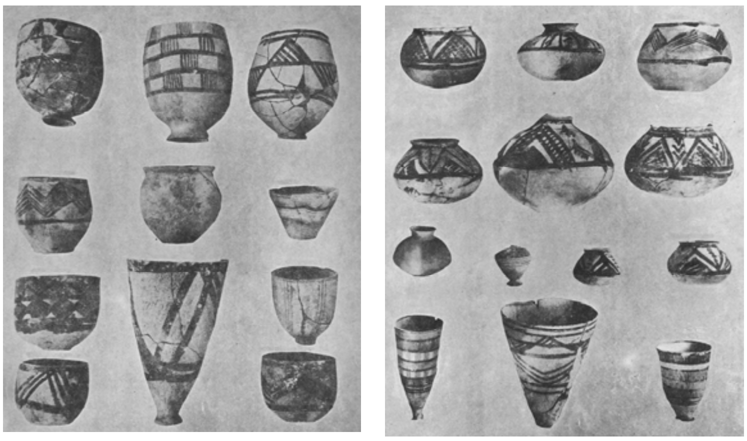


Fig. 4.21: Types of funerary pottery from Shahi Tump

The varying levels of discovery of burials by Stein is attributed to the placing of burials on the slopes of mound after a prolonged denudation marked by a long interval of decay of buildings and the usage of the portion of mound as burial ground over the

debris.[62] However, it may also be noted that the absence of stratigraphical methodology of digging prevalent during the excavation of Stein, the relative chronology between the different levels of burials might have been very difficult to arrive at.

4.2.2.2 Excavations by French Archaeological Mission

The site of Shahi Tump is under excavation by the French Archaeological Mission in Pakistan since 1997.[63] The excavations have brought to light three periods of occupation of the proto-historical Makran at this site, viz., Periods I, II and IIIa.[64] **Period I** at Shahi Tump is comparable with the earliest levels excavated at Miri Qalat located 3 km north of Shahi Tump across the river Kech and characterised by absence of pottery and circular structures.[65]

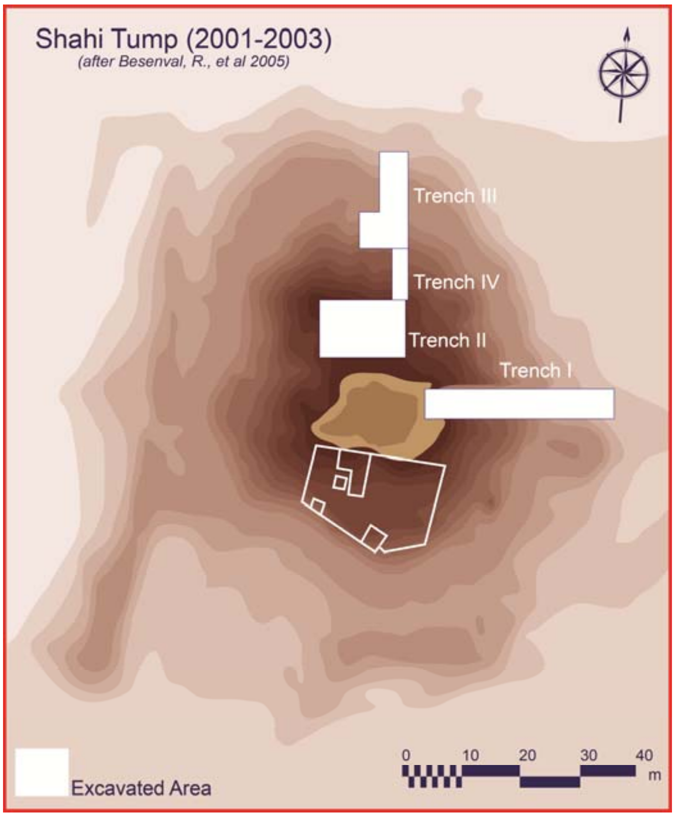


Fig. 4.22: Site plan of Shahi Tump

Period I at Shahi Tump is tentatively dated by the excavator to the 6th / 5th millennium BCE. The Period II at Shahi Tump is placed in the beginning of 4th millennium BCE datable to around 4000 – 3400 BCE. The **Period II** is comparable with evidences from other sites like Miri Qalat and Sar-i Damb.[66] The architecture of

Period II is characterised by stone and mud-bricks as medium of construction. A large stone building with collapsed roof belongs to this period. **Period IIIa** is assigned to the end of 4th millennium BCE and beginning of 3rd millennium BCE, i.e. 3200 – 2800 BCE.



Fig. 4.23: General view of mound at Shahi Tump

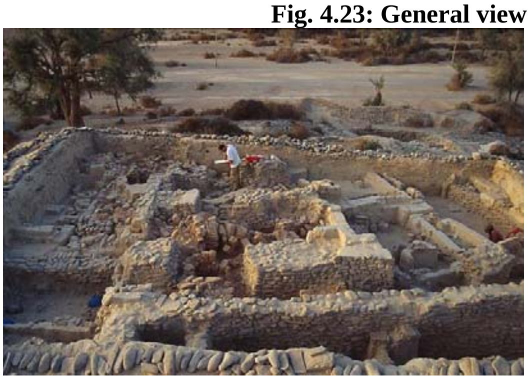




Fig. 4.24: Stone building of Period II (left); Fig. 4.25 Central burnt structure in stone building of Period II, Shahi Tump

The excavations at Shahi Tump by the French Archaeological Mission have enabled to identify the presence of burials in Periods II and IIIa. The burials in the Period II are devoid of any grave goods like pottery or ornaments, while those belonging to Period IIIa, termed by the excavator as *Shahi-Tump cemetery cultural phase*, have grave goods in the form of *".....typical ceramics, bead ornaments, copper objects and faunal remains."*[67]

The excavation has also brought to light the alternate use of the mound for graveyards and buildings followed by abandonment of each, which caused considerable damage of the skeletal remains.[68] The identification of more than 180 individuals from

the excavations also enabled to identify two main modes of burial practices at Shahi Tump, viz., primary and secondary burials.[69]

The differences noticed among the primary and secondary burials are attributed as both *cultural and practical*.[70] In the case of primary burials, a unique ceremony in the management of dead body in identified, whereas in the case of secondary burials, two sets of procedures in *intervention and manipulation of the corpse at different stages of decomposition* has been identified.[71] In the case of secondary burials, it has also been identified that the place of decomposition is different from the place of burial.[72]

The primary burials consist of individual as well as multiple ones (all interred at the same time) and collective burials (more than one individual interred at different points of time).[73] The treatment of the body and burial goods also deserve special mention as invariably most of the burials have some presence of ochre inside it. The presence of ochre is noticed above or below the skeleton, or both places; in a few cases deposited inside a shell.[74] A vast majority (71%) of the burials is of primary in nature and the architecture indicated use of stone and mud-bricks in construction.[75] The characteristics of different burial practices are given below:[76]

Individual Primary Burial Type



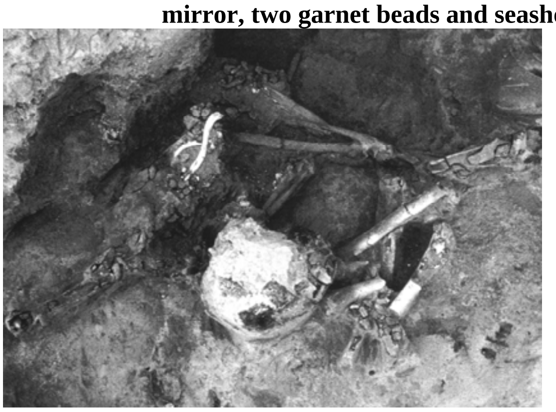


Fig. 4.26: Graves of Period II (*left*);
Fig. 4.27: Grave with "*Leopards Weight*", Shahi Tump (*right*)





Fig. 4.28: Graves of Period II (*left*) and Fig. 4.29: Grave of Period II with shell bangle, a copper mirror, two garnet beads and seashell necklace, Shahi Tump (*right*)



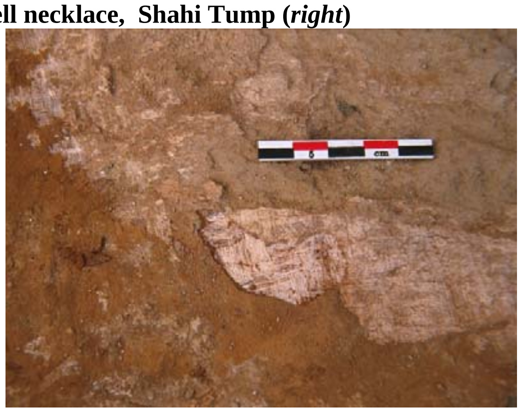


Fig. 4.30: Grave with "cremated body" (left); Fig. 4.31 Mat impression in a burial, Shahi Tump

A burial of Period II revealed the interment in a foetal position laid on his right, with burials goods such as a shell bangle in left arm, a copper mirror, two beads of almandine garnets and seashells with red ochre fills.[77]

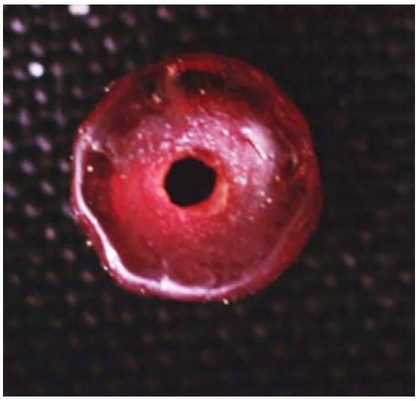




Fig. 4.32: Almandine garnet bead from the burial of Period II (*left*); Fig. 4.33: Seashell necklace from the burial with red ochre fills, Shahi Tump (*right*)

Out of the 181 burials, 128 are of primary burial type, which is 71% of the total finds from the graveyard. The orientation of the burials also vary, but the west – east orientation of interment dominates the most, which accounts to nearly 76% of the

collection; while other orientations like east – west (3%), north – south (11%) and south – north (7%) are also noticed from among the burials. The position of interment in the grave pit indicated a marked preference of laying the bodies on one side and a clear positional indication was understood from 104 burials; the percentage of those laid to left is 45% and to the right is 36%. The position of the body inside the pit is also made as foetal like, with the arms and legs folded and raised upwards. Often the legs are bent abnormally with the heels touching the pelvis. The excavators also record the use of some wrapping around the body in the case of smaller grave pits wherein the body had to be flexed more than required and in one case of an infant burial, evidence of red and black mat associated with asphalt came to light. The presence of compartmented copper seals from Period IIIa graves, which is well attested during Period IIIb, is also documented by the excavators.[78]



Fig. 4.34: Pottery typology of Period II, Shahi Tump



Fig. 4.35: and Fig. 4.36: Graves of Period IIIa, Shahi Tump



Fig. 4.37: Pottery typology of Period IIIa, Shahi Tump

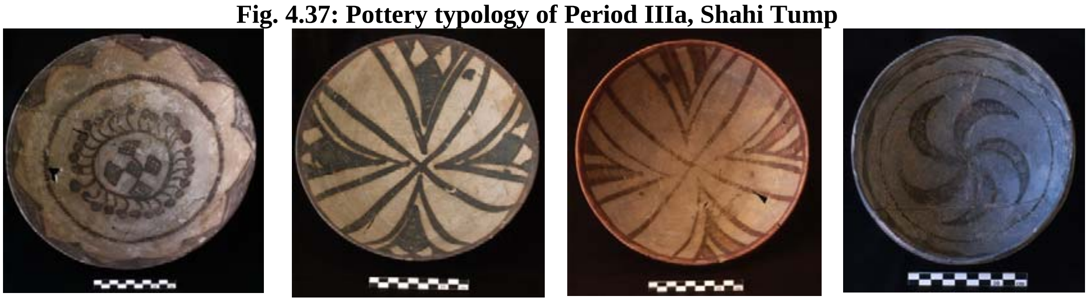


Fig. 4.38: Pottery typology of Period IIIa, Shahi Tump



Fig. 4.39: Compartmented seal *in situ* from burial of Period IIIa, Shahi Tump



Fig. 4.40: Compartmented seals from burials of Period IIIa, Shahi Tump

Cremation Burial Type

An isolated evidence of cremation is also observed from the graveyard, which consists of cremation of the individual in situ, reflected to the burnt sediments

surrounding it. Chronologically, this burial is placed in the Period II, which is oriented in east – west placed on its back without association of any burial goods.

Multiple Burial Type

The multiple burial types are the next dominating variety after the individual primary burials, the former constituting 17% of the primary burial types and 15% of the total graves.[79] This burial type consists of interment of more than one individual in the grave, sometimes showing intermingling of skeletons.



Fig. 4.41: Pottery typology of Period IIIa, Shahi Tump

One of the burials of this variety is that of a male adult and a child of 2.5 – 3 years old. The orientation of the burial is from west – east, the male adult lying on his back, with the skull facing south, both the hands folded and kept over the chest while the legs are bent at the knees and drawn upwards in a position that the ankle touches the pelvis.[80] The burial goods consist of a copper flat axe and chisel along with the adult. This burial also belongs to Period II. Analysis on the flat axe brought to the light linen clothing in which it was wrapped and one site preserved the impression of mat on which the body was laid in the pit.[81] Another example of multiple burial types it that of a group of 11 skeletons in one interment. This group of skeletons indicates interment at

one particular point of time, even though the reasons for simultaneous death could not be ascertained.[82]





Fig. 4.42: Example of multiple burial type, group of 11 skeletons, Shahi Tump (*left*); Fig. 4.43: Example of multiple burial type, a male adult and a child, Shahi Tump (*right*)





Fig. 4.44: Axe with mat impression (*left*); Fig. 4.45: Axe with mineralized impression of cloth on which it was wrapped, Shahi Tump (*right*)

Secondary Burial Type

This type of burials represents 5.5% of the total burial collection and the excavators surmise that they are very hard to identify. It is also described as

"……burials refer to an intentional, pre-defined action, which is an integrated part of the funeral process."[83]

Age and Gender Determination

The excavators have followed classification of the adult skeletons into three groups, viz., young, between two ages and old, and the analysis indicated equal distribution among various ages and age 23% of the skeletons could not be determined, while 17.5% were young children.[84] The gender determination carried out indicated the presence of 41 females (43%) and 18 males (19%), while gender could not be concluded for 37 individuals.[85]

The excavators have concluded on the burial practices at Shahi Tump as, *"….people had variegated visions of death,…..choice of particular kind of funerary practice was guided by personal choices and beliefs that were linked to a social code."*[86]

4.2.3 Miri Qalat

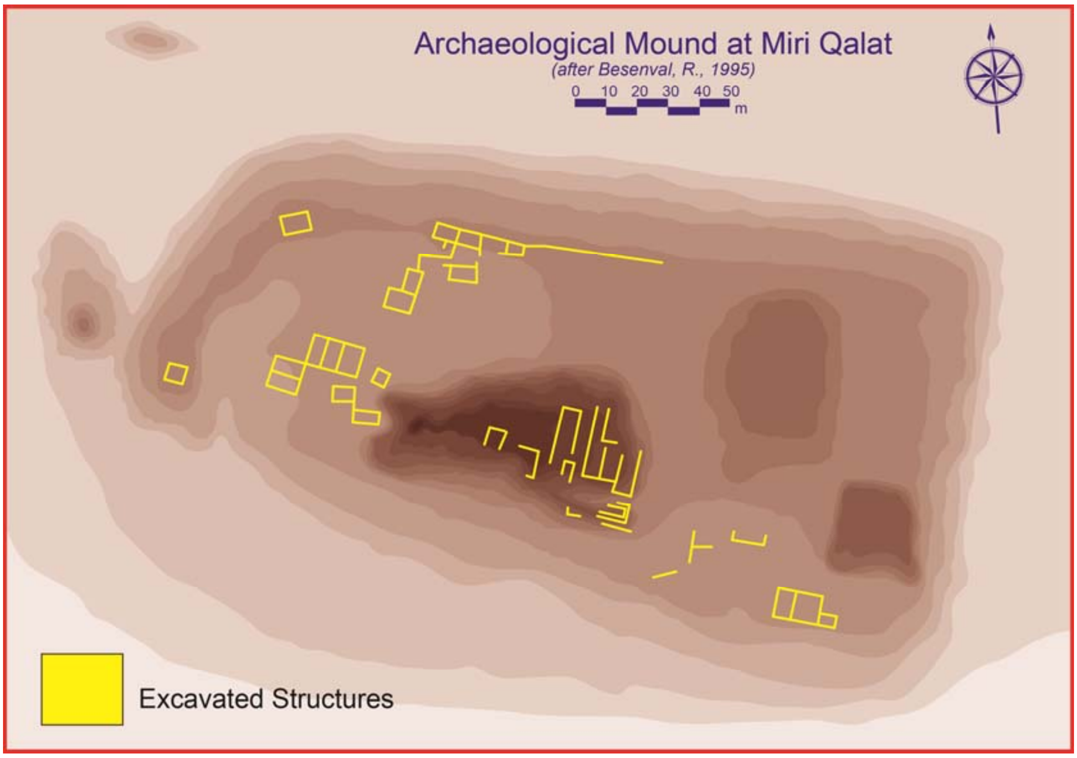


Fig. 4.46: Site plan of Miri Qalat

Miri Qalat (*26^0 2' 1.48" N; 63^0 0' 45.86" E*) is located on the right bank of River Kech, nearly 3 km north of Shahi Tump and same distance from the nearby town

Turbat in the Makran region of Baluchistan, Pakistan. Miri Qalat was excavated by the French Archaeological Mission in Pakistan from 1992 – 1996 and brought to light four cultural periods here, viz., **Period I**[87] is datable to the beginning of 5^{th} millennium BC and is represented by a large stone wall, and flint tools associated with that level. Period I is associated with two levels, resting on the natural soil. A grave, topped with flat river stones and dug into the natural soil was also found associated to this period. Period I at Miri Qalat is equated with Period I of Sar-i Damb, which is located near Hoshab, and yielded a microlithic industry without pottery.[88]



Fig. 4.47: General view of the mound at Miri Qalat



Fig. 4.48: Assemblage of Period IIIa



Fig. 4.49: Black-and-white on red ware, Period IIIa



Fig. 4.50: Togau Ware of Period IIIa, Miri Qalat

Period II is termed as "Miri Period" and is datable to the first half of fourth millennium BCE. Period II is characterised by three structural phases consisting of mud-brick walls on stone foundations while the associated pottery comprises of orange-red to grey ware with geometrical decorations in brown and black.[89] The other associated finds of this period include those of terracotta bangles with mat impression

on interior, terracotta sling stones, terracotta ring lamps, shell bangles, stone vessels of steatite, etc.[90] The radiocarbon dates for this period indicate a clustering around first half of fourth millennium BCE. **Period IIIa** at Miri Qalat is datable to second half of 4th millennium BCE to beginning of 3rd millennium BCE. The pottery assemblage of Period IIIa comprises of Togau C – D, Nal monochrome and polychrome, Zari Ware, Black-and-white on red ware, Shahi-Tump ware, etc., and has parallels with Mundigak III, Shahr-i Sokhta I, Tepe Yahya IVC, Anjira, etc.[91] This period is also characterised by the discovery of seven graves.

The burials are oriented in west – east directions, the bodies placed in foetal position, and painted with red ochre.[92] The important burial goods consist of typical pottery of the Shahi Tump cemetery assemblage, an alabaster vessel in grave 105, compartmented copper seals, shells of various kinds, beads of lapis lazuli, steatite, seashell, carnelian, and lumps of ochre.[93]



Fig. 4.51: Grave of Period IIIa, Miri Qalat



Fig. 4.52: Skull with sea shell crown, Pd IIIa



Fig. 4.53: Incised sea shell bangle



Fig. 4.54: Various beads *in situ* in a grave of Period IIIa, Miri Qalat



Fig. 4.55: Necklace of beads of various materials of Period IIIa, Miri Qalat

Period IIIb at Miri Qalat is datable to the first half of 3rd millennium BCE and the pottery termed as Dasht-Bampur assemblage is comparable to that of Bampur I-IV, Mundigak IV, and Nausharo IC.[94] The pottery of final phase of Period IIIb represents a transition between the Dasht and so-called Kulli culture.[95]

Period IV at Miri Qalat is represented by the presence of Harappan Culture as well as some components of Dasht / Bampur and development of Kulli culture.[96] Period IV is datable to second half of 3rd millennium BCE.

4.2.4 Kulli

Kulli (*26⁰ 15' N; 65⁰ 00' E*) is located in southern Baluchistan of Pakistan. Aurel Stein first investigated the site during his tour to Gedrosia.[97]As per the estimate of Stein, the mound at Kulli-*damb* measured 366 m X 302 m (NS X EW) and rises to a height of 9.14 m from the surrounding plains and rated as one of the largest of mounds in the Kolwa region.[98]

Stein also reports the large-scale use of stones as the building material at the site which could have been brought from a distance of nearly 3.2 km from the site, and hence attests importance to the site as the *".....chief prehistoric settlement of Kolwa".*[99] Stein also reports habitation remains distributed in two prominent mounds and similar remains in a small area at a distance of 110 m to the northwest of the mound.

The northern mound of Kulli-*damb* is higher than the southern area, the former rising to a height of 9.14 m, the top of which is a flat area roughly measuring 55 m X 46 m, which contains a small settlement of probably of medieval period.[100] The southern mound rises to a height of 4.6 – 7.6 m in height, the surface of which is characterised by

".....low heaps of stone debris from decayed structures".[101]The dominant pottery finds from the surface consisted of designs in black colour executed on red surface, followed by designs in brown, pink or purple on buff surface.[102]

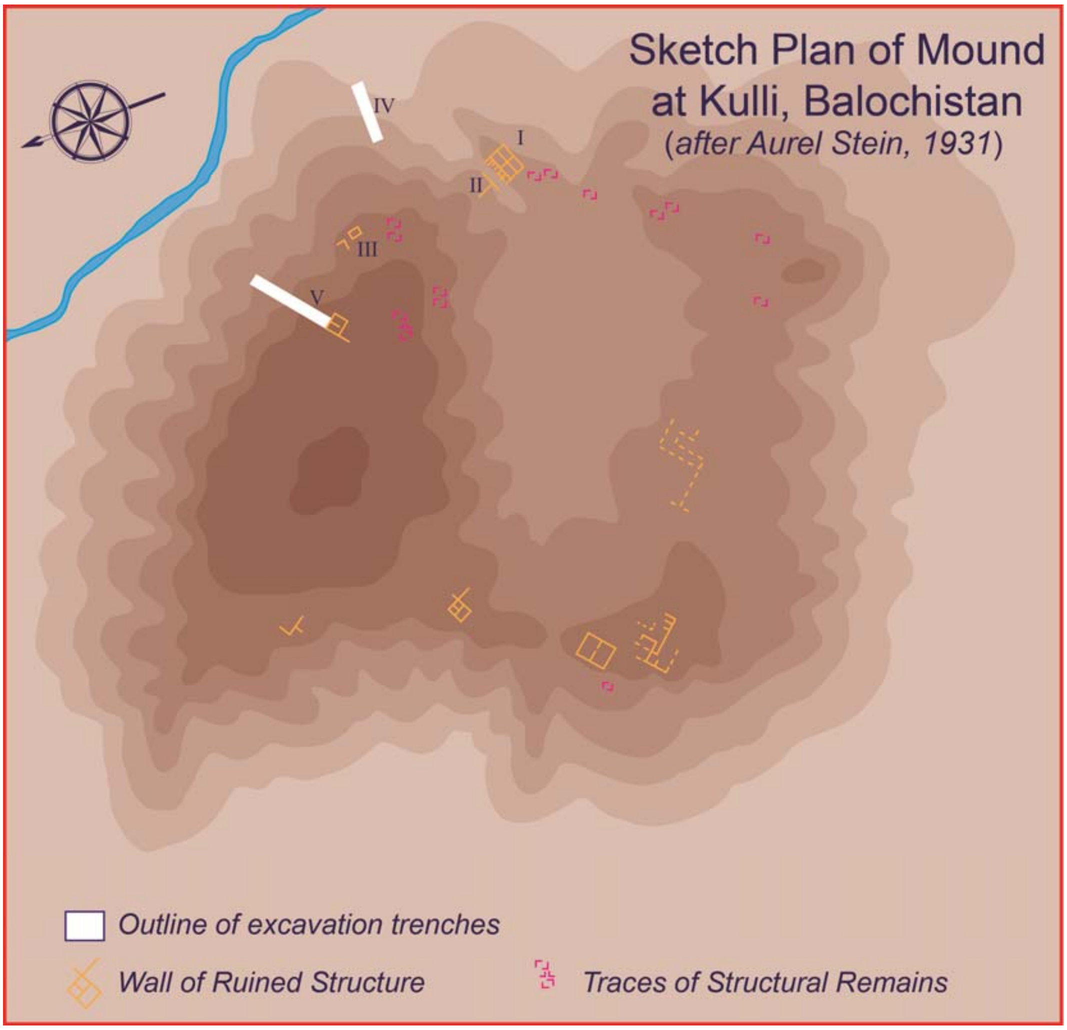


Fig. 4.56: Sketch plan of Mound at Kulli, Baluchistan

The painted motifs consist of, *"………simple geometric patterns…..rows of adjoining heart shapes; triglyphs divided by sigmas; fringed bands; vandykes solid or hachured; rows of large-horned mountain sheep; the well-drawn hind part of a bull; sharp parallel rides."*[103]The parallels to the geometric painted patterns are made with chalcolithic ware of Zhob and Seistan while the sharp parallel ridge patterns are compared with lower levels of Shahi Tump.[104] The *'trial excavation'* by Stein was carried out in five trenches, namely I – V along the southeastern portion of the northern mound. The sketch plan (Fig. 4.56) published by Stein also indicates the plans of excavated structures and traces of other structural remains.

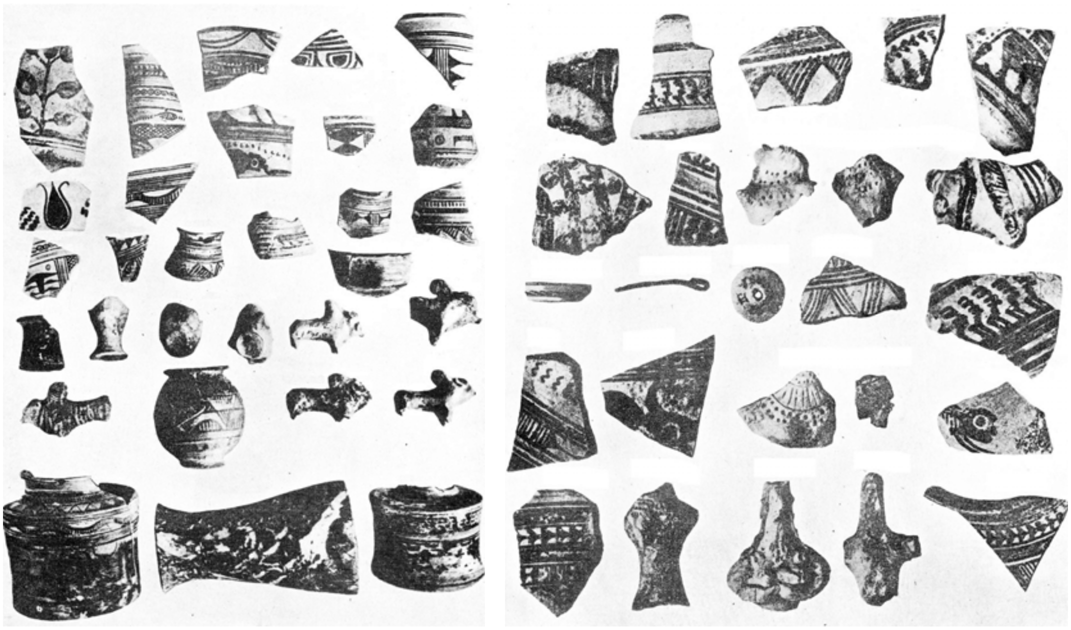


Fig. 4.57: Painted pottery from Kulli, Baluchistan

The trial excavation brought to light stone structures forming part of a large building consisting of rooms mainly constructed of limestone base and shale superstructure and a pavement outside made of shale. Several additions and alterations to the structures were also noticed at different levels of occupation. A burial was also excavated in Trench I opposite to the southwestern corner of the building. It has been estimated that the burial was constructed when considerable debris piled up outside the building.

The burial was found at a depth of 1.22 m from the surface. The orientation of the burial is from north – south, with the head placed towards the north, while the position indicates that the knee of the legs drawn upwards near the face and arms bent near the head.[105] The orientation and position of the body in the burial pit has clear parallels with the Period II burials from Sohr Damb / Nal in northern Baluchistan and Shahi Tump in Makran wherein they are dated to late fourth millennium BCE. The tradition of positioning of the body in a 'foetal' condition dates back to the Neolithic period of Baluchistan as observed from the burials of Mehrgarh. The evidence at Mehrgarh indicates that this positioning originated during Neolithic levels and continued well into the advanced Chalcolithic levels (Periods VII and VIII), even though slight variations in orientation is noticed.



Fig. 4.58: Painted pottery from Kulli, Baluchistan

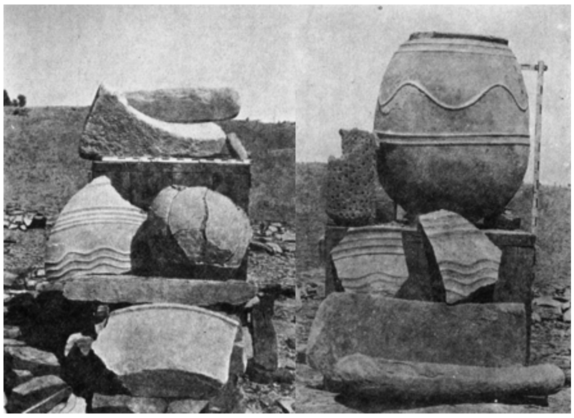


Fig. 4.59: Decorated pottery and grinding stone from a dwelling, Kulli, Baluchistan

The painted pottery from the excavations has been compared to those finds from north Baluchistan, Zhob, Loralai and lower levels of Shahi Tump of Makran area in terms of geometrical motifs. The complete absence of Nal type decorations from the pottery finds of Kulli is also noticed here. The distinctive feature of Kulli pottery is the representation of plant and animal motifs and an additional colour.[106] The geometrical motifs from the pottery include *".....hachured vandykes, leaf shapes, simple or feathered festoons"* found in combination of stylised animal and plant motifs; the chief animal motifs consist of *".....large-horned beasts shown in movement and probably representing mountain sheep or ibex....bull.....a strange big-horned creature with curved legs".*[107]Further pottery with perforation and *...relief decoration with sharp-ridged ribbing, a vessel part decorated with wavy lines in relief.."* was also found from the excavation. The other prominent finds include grinding stone, 27 beads of agate and black stone, broken bull figurines, fine grinder of reddish marble, small terracotta figurines identified as 'mother goddess', a thin gold plate, etc.[108]Stein observes that Kulli might have been abandoned prior to advent of Nal ceramics based on the complete absence of Nal type ceramics from Kulli and appearance of Nal ceramics at Shahi Tump at a later stage.[109]

4.2.5 Nindowari

Nindowari (*26^0 56' 27" N; 66^0 6' 29" E*) is located along the River Kud in Ornach Valley in Southern Baluchistan. R.L. Raikes, a hydrological engineer, discovered Nindowari. Nindowari is locally known as Nindowari-damb and located on

the right bank of River Kud, a tributary of River Porali in the Ornach valley and in Jhalawan part of district Kalat. Beatrice de Cardi first extensively surveyed the site along with another site named Kineru in the Ornach valley. A small exploratory dig in Nindowari by de Cardi brought to light the remains of pottery of Kulli culture and few potsherds of Nal ware.[110] Jean-Marie Casal excavated the site under a collaborative project between the French Archaeological Mission and Department of Archaeology and Museums of Pakistan during 1962-63 to 1964-65. According to Casal, the maximum extent of ancient site at Nindowari ranged from 914 m to 1097 m north – south and 457 to 549 m east – west.[111] Casal reports the remains of many structures based on the surface study, with a prominent central section, which is quadrangular in shape and bordered by several walls encircling rising terraces from the riverbank.[112] The surface explorations also led to the identification of several important portions of the site, christened as Area A (central main mound), Area B (quadrangular platform and building bordering its eastern portion), Area R (portion of outer enclosure wall revealed in a trench), Area T (rectangular blocks in the northern section) and Area KD (a mound lying 183 m south of Area A and separated by a ravine).[113]

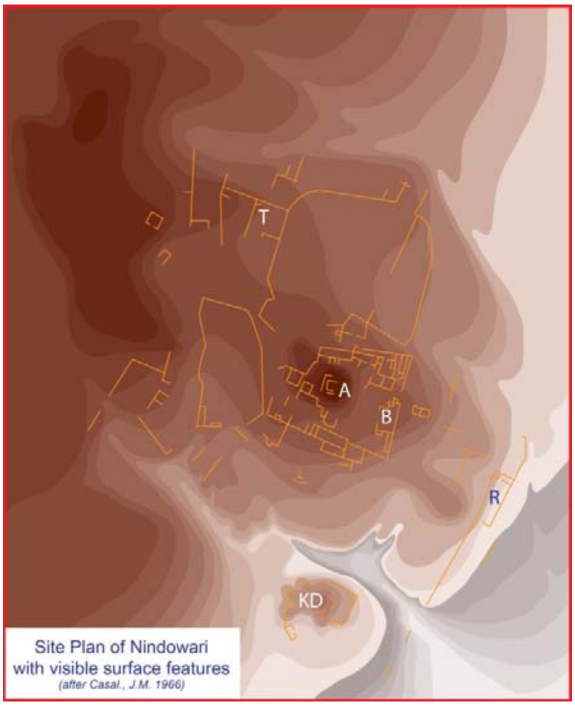


Fig. 4.60: Site Plan of Nindowari with visible surface features; Areas designated respectively as A, B, R, T and KD are also shown

The site of Nindowari is considered as a prominent Kulli period site, even though the presence of habitation layers of a pre-Kulli period was unearthed in Area A and B and designated as **Period I**. Period I is datable from ca. 2800 – 2600 BCE. The boring in Mound A yielded pottery of yellow buff and pink in colour, and decorated with monochrome geometrical motifs in black, some of which resembles the Nal specimens.[114] The excavator also reports the stray occurrence of polychrome Nal pottery from various locations of the site. The evidence of stone architecture along with mud bricks, paving with stones, humped bull and human figurines in terracotta was also unearthed.[115]





Fig. 4.61: and Fig. 4.62: Area A, Nindowari (before excavation)

The remains of **Period II**, belonging to the Kulli culture were unearthed in Area A and the decorated pottery found from this level is distinct from that of Period I. The pottery of Period II is classified as Kulli A pottery by Jarrige and distinguishes it from Kulli B style pottery of Period III.[116] The remains of **Period III** have been found in several parts of the site in excavations at Areas A and B and datable from ca. 2600 BCE. The structures of this period are vast complex of buildings consisting of several rooms, passageways and staircases. Period III is datable from to the last centuries of third millennium BCE to the beginning of second millennium BCE. The remains of Period IV are found from Area KB, Area T and belong to the Londo culture datable to the beginning of first millennium BCE.

The excavation in **Area A** brought to light the remains of a narrow terrace running north – south; a passage leading to three steps, the latter interpreted as the remains of a staircase connecting a superstructure; another staircase along the southern periphery of the quadrangle. The structures are of stones set in mud mortar and with mud brick fillings.



Fig. 4.63: Area B, Nindowari



Fig. 4.64: Pottery from Period I, Nindowari



Fig. 4.65: Pottery from Period II (Kulli A Style), Nindowari

The excavation of the habitational remains yielded pottery of the Kulli type, characterised by the depiction of animal motifs set in landscape and large number of figurines, both female and bull. The female figurines are elaborately decorated with bangles and necklaces and holding a baby; the headdress ranging from elaborate plaited hair, to a small cap or with a spiky headgear, the latter the characteristic feature of Zhob figurines.[117]

The excavation in **Area B** brought to light rectangular pits of various dimensions and depths, the floors and walls lined with stones. These pits, identified as granaries, yielded remains of grains at the bottommost layer, saddle querns in all the layers and broken parts of vessels in the upper levels. The stone structures exposed in this area did not present a coherent plan due to various disturbances, but different from the above-

mentioned structures. The excavation yielded Kulli pottery, comparable to those found from Area A, along with the presence of three seals, two with typical unicorn motif and letters and the third one being circular in shape depicting geometrical patterns.

Area R is located at a lower level and nearer to the river, which on excavation brought to light a portion of rampart, constructed with stones set in mud mortar with a slight batter and the exterior wall well dressed. The remains of two square buttresses have been attributed to the rampart character of the wall. The dating of the rampart could not be made due to the absence of proper occupational layers and pottery.



Fig. 4.66: Pottery from Period III (Kulli B Style), Nindowari



Fig. 4.67: Pottery from Period IV (Londo Culture), Nindowari

The excavation in **Area T** brought to light the remains of small rectangular structures, located at one corner of rectangular compounds, the plans of which could be traceable on ground.[118] Excavation carried out in one of the rectangles revealed its construction on top of a large conflagration, without any foundation and measures 12.8 X 5.49 m. The structure is constructed of stones with a slight batter on the exterior and boulder filling on the interior.[119] An interesting feature noticed is the arrangement of around 30 vessels, mostly bowls, arranged in a group on the surface before construction took place. The pottery is hand-made and of blackish gritty fabric displaying similarities with those from the main mound in lesser quantity.[120] Another noteworthy feature found in association with the pottery vessels is the occurrence of white powder,

attributed by the excavators as remains of pulverised bones, which may then indicate the possibility of this structure as a *"……funerary monument or cairns of late date."*[121]



Fig. 4.68: Skeletal Remains from Area B, Nindowari

The **Area KD** is located at a distance of 228 m south of the main mound and rises to a height of 6 m, which is locally known as *Kulliki-an Damb* or *"the Mound of Potteries."*[122] The excavation carried out on the southern slope of the mound brought to light a *"massive three-storied tower, stepwise built with intermediate terraces."*[123] The wall exhibits a slight batter on the exterior here also, and the surface lined with river boulders. The other findings here include that of a corner bastion, topped with a large room or an open platform, showing evidence of two distinct phases of occupation floors marked by rammed earth containing ashy layers, potsherds and few charred bones.[124] The mound KD is also enclosed by a massive peripheral wall, the evidences of which are traced by the excavator at a distance of 91.4 m to the east of the mound and traceable to a length of 152 m on the surface. The ceramic finds from this mound has been reported as completely different and distinct from the Kulli ceramics of the main habitation area. The pottery is marked by a pink to brick-red slip, painted with geometrical and natural motifs in black, dark brown or dark violet, etc.

The presence of two burials has been reported from the site, in Area B. The remains of two skeletons were unearthed very close to the surface and hence not treated as regular burials by the excavator and termed as "haphazard burials".[125] These burials

are not associated with any kind of pottery and hence its dating is difficult. However, Jarrige reports the presence of a probable graveyard at Chota Gurgai, a site nearly 3 – 4 km south of Nindowari.[126] Jarrige also points to the incidence of plundering of graveyard sites in Baluchistan and occurrence of Kulli A and B style pottery from these sites including Chota Gurai one, a specimen of which was preserved in the Exploration Branch in Karachi.[127] The jar, which is missing now, depicts a bull, several signs, a bird and plants of the Kulli B style.[128]

4.2.6 Santhli

The settlement at Santhli (*23⁰ 54' N; 71⁰ 29' E*), district Banaskantha, Gujarat is locally known as "*Gachi-na-thumdo*" and is designated as Santhli II by the excavators of M.S. University, Baroda.[129] The site is located at a distance of approximately 1.5 km southwest of village Santhli wherein surface scatter indicated a habitational area spread over 120 X 90 m. The excavation brought to light a habitation deposit of nearly 40 cm, which is sub-divided into two cultural occupations, viz. **Period I** (Mesolithic) and **Period II** (Chalcolithic II).[130] Period I is represented by a deposit of 25 – 30 cm belonging to the Mesolithic culture and is marked by the presence of both geometric and non-geometric microliths.[131]

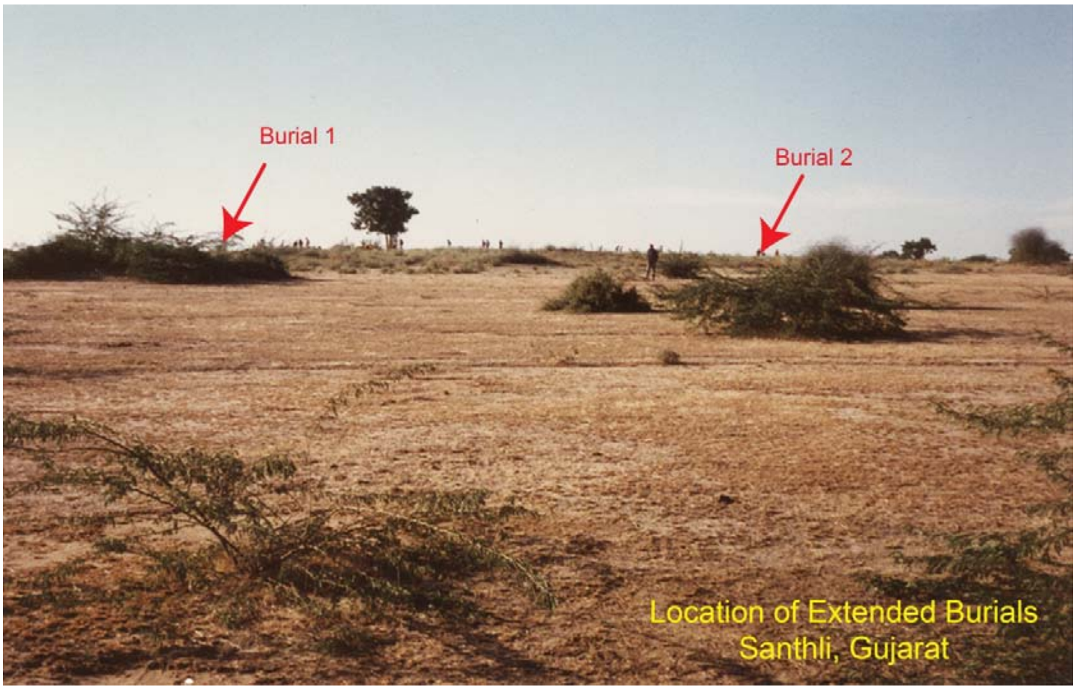


Fig. 4.69: Location of extended burials, Santhli, Gujarat

The prominent tool types being that of lunate, triangle, trapeze, crescent, point, backed-blade and blade & flake cores.[132] The tools were fashioned on materials like chalcedony, agate, jasper, chert and rarely on quartz. The Mesolithic settlement at Santhli has been identified by the excavators as that of a seasonal habitation by hunter-gatherer community due to the limited nature of finished artefacts and lithic assemblage.[133]



Fig. 4.70: Extended Burial 1, Santhli



Fig. 4.71: Extended Burial 2, Santhli

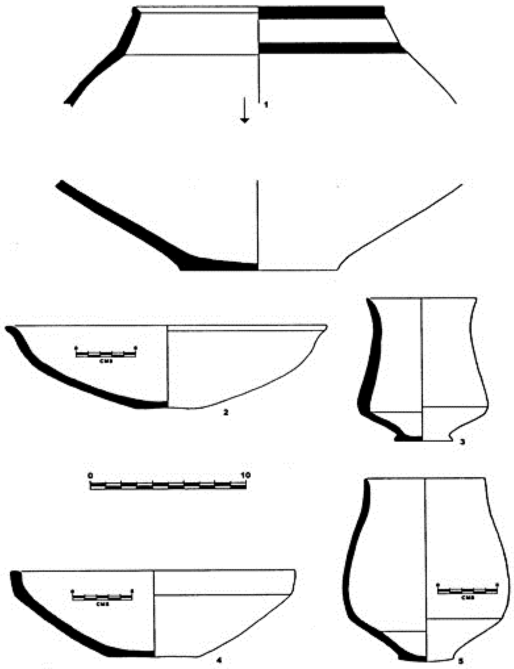


Fig. 4.72: Pottery from the burials, Santhli



Fig. 4.73: Pottery from Burial 2, Santhli

The excavations also brought to light a large number of animal bones, mostly of wild cattle, followed by sheep / goat, gazelle, pig, *equiid* sp., and fish.[134] The excavators identify the Mesolithic settlement of Santhli as also a butchery and food-processing site based on the nature of the faunal remains, their presence in clusters and other related aspects.[135] Period II at Santhli belongs to the Chalcolithic culture and is represented by

a flimsy deposit of only 10 – 15 cm. This period is represented by few pottery, stone and shell beads, bangles, etc., which is interpreted by the excavators as a *"....very ephemeral habitation at the site"*.[136] The Chalcolithic settlement is however marked by the presence of two extended inhumation burials, with east – west orientation and the head on the east.[137]

Burial 1 is an example of a joint / double burial consisting of two adult individuals laid on their back with their heads facing each other. These two individuals have been interred in a single pit and the associated grave furniture consist of five pottery vessels comparable to that of Nagwada and placed in the Pre / Early Harappan context.[138] Burial 2 is that of a child burial, found in association with pottery vessels consisting of beaker, shallow bowl or dish, and similar to that found from Burial 1. The burials are devoid of any other grave goods. The excavators also report that exploration in the vicinity of 5 km from Santhli brought to light some sites represented only by the burial pottery similar to Santhli, but devoid of any cultural material.[139]

4.2.7 Nagwada

Nagwada (*23^{0} 18' 15" N; 71^{0} 42' 45" E*)is located at a distance of 3 km south of the village Nagwada and consists of four different habitational areas with assemblages ranging from Anarta, Amri-Nal, Harappan and Lustrous Red Ware.[140] The habitation mound location known as Godh is designated as Nagwada I by the excavators which yielded remains of mature Harappan period from the surface exploration.




Fig. 4.74: General view of Nagwada I (left); Fig. 4.75: General view of excavation, Nagwada (right)

The mound designated as Nagwada I is located on the northern bank of an ephemeral stream known as Vonkali which forms part of the Rupen estuary in the north-

western part of Gujarat mainland. The site was excavated by M.S. University, Baroda for four seasons, viz., 1985-86,[141] 1986-87,[142] 1987-88[143] and 1988-89.[144] Nagwada I measures 140 X 110 m and the excavation brought to light a single period cultural deposit of 0.91 – 1.04 m consisting of four structural phases in five layers.[145]

The cultural deposit if further subdivided into two sub-periods, viz., Period IA and IB. Period IA is characterised by the presence of burials only while Period IB is marked by the Harappan culture along with non-Harappan elements of Anarta ceramics.[146] The earliest habitation is preserved in the fifth layer in which the first phase of structural activity consisted of postholes found extending into the natural soil while during the second phase, rectangular structures of undressed stones were noticed.[147] The structures of the third phase consisted of rectangular structures constructed of mud bricks measuring 8 X 16 X 32 cm while those of fourth phase rectangular rubble stone structures reappear.[148]

The pottery assemblage consists of a minimal Harappan pottery while the non-Harappan pottery of coarse gritty red ware and white painted black-and-red ware is predominant in all the habitational levels.[149] The ceramic industry consisted of Harappan red ware, buff ware, chocolate slipped ware, plain and white painted black-and-red ware.[150] The settlement was a major craftsman centre for items like stone beads, shell bangles, inlay and pendant.[151] This is attested by the presence of large number of agate beads in various stages of manufacture along with chert micro-drills and shell bangles with manufacturing waste.[152] The other artefact finds include that of beads of agate, lapis lazuli, steatite, amazonite, faience, carnelian, shell; gold object, silver spiral rings; Harappan sealing, image of Mother Goddess, copper axe-heads, copper bangles and rings, etc.[153]


Fig. 4.76: Burial 3, Nagwada


Fig. 4.77: Burial 5, Nagwada



Fig. 4.78: Burial 2, Nagwada



Fig. 4.79: Burial 6, Nagwada





Fig. 4.80: Early Harappan pottery from burials, Nagwada (left); Fig. 4.81: Early Harappan pottery from Burial 2, Nagwada (right)

As mentioned above, only Period IA is represented by the presence of burials. The burials of this period are of both extended inhumations and pot burials. The extended burials are in east – west orientation with the burial furniture placed near the foot. The pot burials consisted of symbolic representation of internment of only burial pottery and devoid of any skeletal remains.

The nature of the burial pottery also varied in all the three burials. One of the burials has ten complete pots, while the second containing only six while the third one is represented by only a large jar with a lid cover.[154] The pot burials are also found in an east – west orientation. The burial pottery consists of shapes like *"dish-on-stand, dish without carination, beaker, bowl, disc-based globular jar, and short-necked globular vessel."*[155] The excavators conclude that the ceramics are non-Harappan and are similar to those found *"…..from the upper pre-Harappan levels at Amri, Nal, and Kot Diji."*[156]

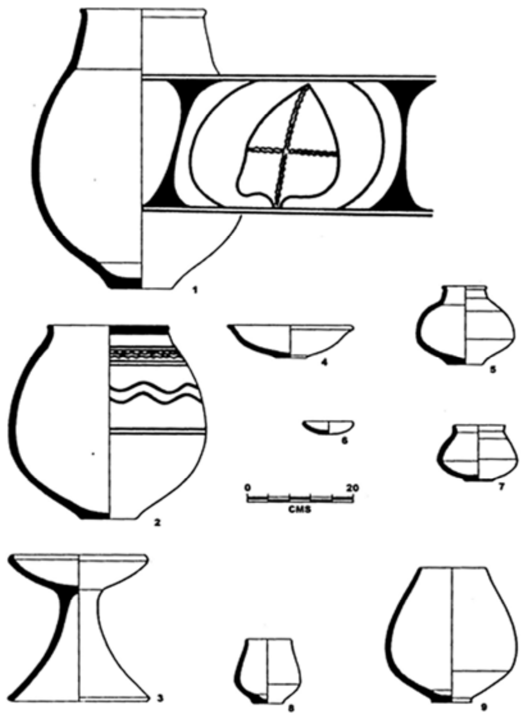


Fig. 4.82: Pottery from Burial 3, Nagwada

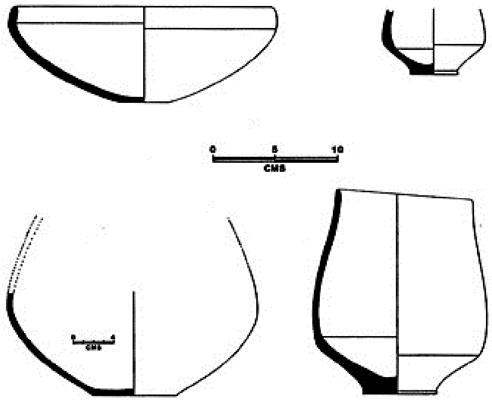


Fig. 4.83: Pottery from Burial 5, Nagwada

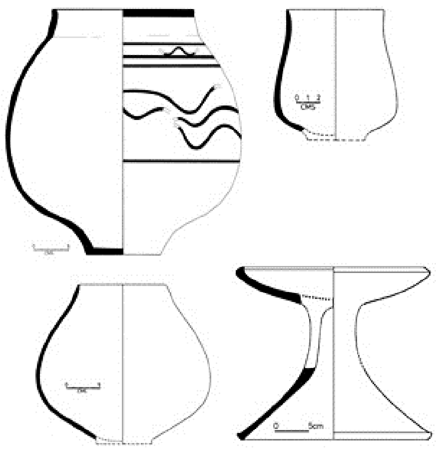


Fig. 4.84: Pottery from Burial 6, Nagwada

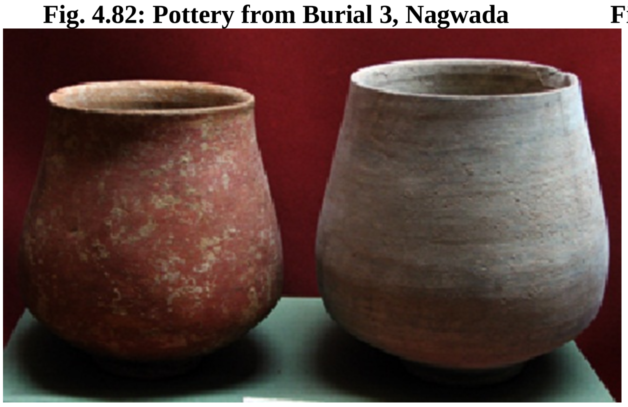




Fig. 4.85: Early Harappan pottery from Burial 3, Nagwada (left); Fig. 4.86: Urn Burial (?), Nagwada (right)

The occurrence of *"...pre-Harappan pottery forms and Harappan pottery, non-Harappan pottery like the gritty red ware and the white painted black-and-red ware at Nagwada"* is interpreted by the excavators that the community migrated by land from Sindh to Gujarat through south-western Rajasthan, *"....moving from one settlement to*

another, over a long period of time, assimilating different cultural equipment during this movement" which is also supported by settlements like Gharo Biro and Kot Kori in lower Sindh.[157]

4.3 Mature Harappan

4.3.1 Harappa

Harappa (30^0 37'31.30" N; 72^0 51' 52.22" E), district Sahiwal (formerly Montgomery) in Pakistan is the first site of the Indus Civilization (now Harappan Civilization) to be excavated in 1920-21, which was followed by Mohenjo-daro. The circumstances leading to the discovery and excavation of Harappa are mentioned in Chapter III. The ancient site at Harappa was excavated on several occasions, some sporadic diggings in 1853 and 1856 by Alexander Cunningham, from 1920-21 to 1933-34 by Daya Ram Sahni, M.S. Vats and others, in 1937 by K.N. Sastri, in 1946 by R.E.M. Wheeler, 1968 by R. Mughal, from 1987 to 2001 by Harappa Archaeological Research Project by Richard Meadow and Mark Kenoyer. As noted elsewhere, the principal divisions of the archaeological mounds at Harappa have been christened by Alexander Cunningham, which is still followed. The site was extensively damaged due to brick robbing right from the period of Cunningham's visit, who has recorded with despair the extensive use of bricks removed from the site to be re-used as brick ballast for nearly 100 miles (160.9 km) of Lahore – Multan railway line.

4.3.1.1 Excavation by Daya Ram Sahni and M.S. Vats

As mentioned above, Harappa was excavated from 1920-21,1923-24 and 1924-25 by Daya Ram Sahni and from 1926-27 to 1933-34 by M.S. Vats. Vats arrives at a chronology of the various divisions of Harappa based on the stratigraphy, antiquarian findings as well as in comparison with the already available chronology of Mohenjo-daro by Sir John Marshall. The archaeological findings have been placed in three periods, viz., Early, Intermediate and Late as with the case of Mohenjo-daro. While the Early Period has only one sub-period, the Intermediate and Late Periods have four sub-periods, I – IV. Vats places Mound F as the oldest and having earliest habitational remains and thus assigns Early I to the oldest deposits and placing them to first half of fourth millennium BCE.[158] Mounds AB and J starts with Intermediate II and continues up to Late I Periods datable from ca. 3050 to 2750 BCE, while Mounds G and H are

slightly later. However, chronology of the mounds were done basically as per the evidence and methodology available during the 1930s and since the inception of radiocarbon dating and the recent excavations by HARP, the chronology of Harappa has been revised considerably by the excavators.

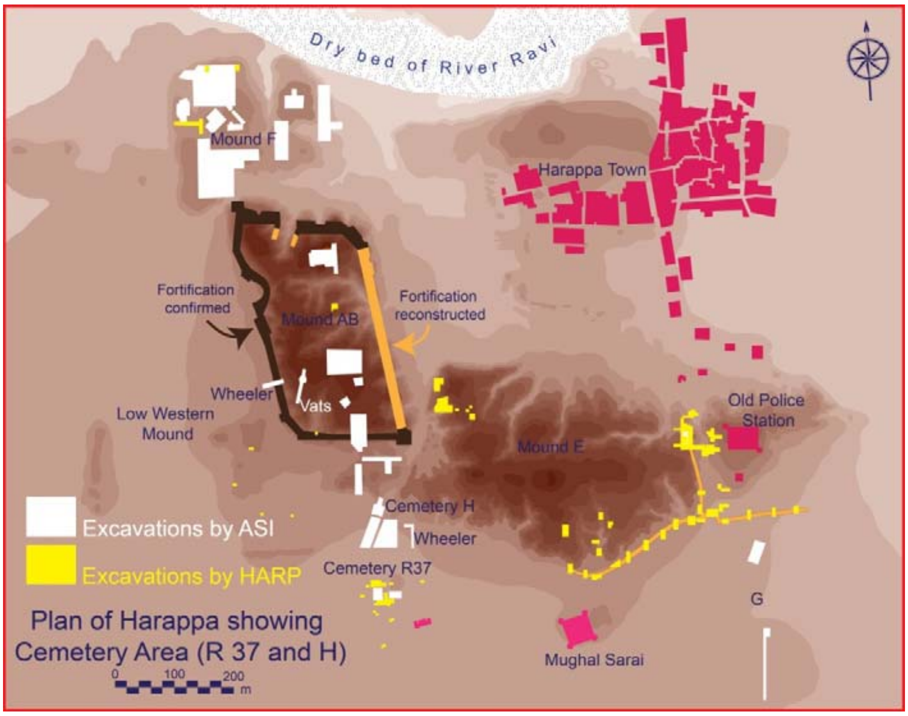


Fig. 4.87: Plan of Harappa showing Cemetery Area(R 37 and H)

The excavations were carried out in Mounds F, AB, J, H and G. It has been estimated by Vats that nearly in 95% cases the ruins were disturbed and hence a great deal of information regarding the house plans, layout of streets, drainage systems, etc., could not be ascertained. The prominent findings from the excavations as reported by Vats are two categories of buildings, viz., dwelling houses and public buildings; burnt brick architecture from the very beginning, mud-brick solid terraces for safeguarding the settlement from the floods, floors of either mud, or bricks laid flat or on edge, "Great Granary" in Mound F, evidence of staircases and drains, refuse water pits, less wells in comparison to Mohenjo-daro; row of circular brick-on-edge platforms and evidence of burials at Cemetery H.[159] Cemetery H is located to the south of Mounds D and E and the excavation revealed two levels, viz., Stratums I and II. The Stratum II being the earliest is characterised by "earth burials" consisting of dead bodies, entire or fractional, along with funerary pottery and furniture while the Stratum I consist of "pot-burials" in

which the fragmentary funerary remains are interred in urns after probable exposure to birds and beasts of prey.[160]

Excavation in Area G by Vats

While the excavation carried out at Cemetery H brought to light the burial remains of Late Harappan period, some burials in Area G located to the southeast of Mound E and south of Mound ET were also excavated. This area was a low lying one similar to Cemetery H area and severely affected by salt action. In this area, three trenches, namely Trench I, II and III were excavated by Vats in 1928-29. The Trench I yielded only parts of three walls widely separated from each other and some minor artefacts and pottery in three identifiable stratums. The Trench II also yielded three stratums, and among the artefact finds 31 cylindrical terracotta sealings, each containing a unicorn on one side and four pictograms on the other side are noteworthy.[161] Two groups of pottery (G 15 and G 130) were also brought to light containing ceramic types like jars, dishes, globular jars, vase, goblet, offering's cup and dish, shallow dishes, saucers, identified as similar with the findings from the mounds.

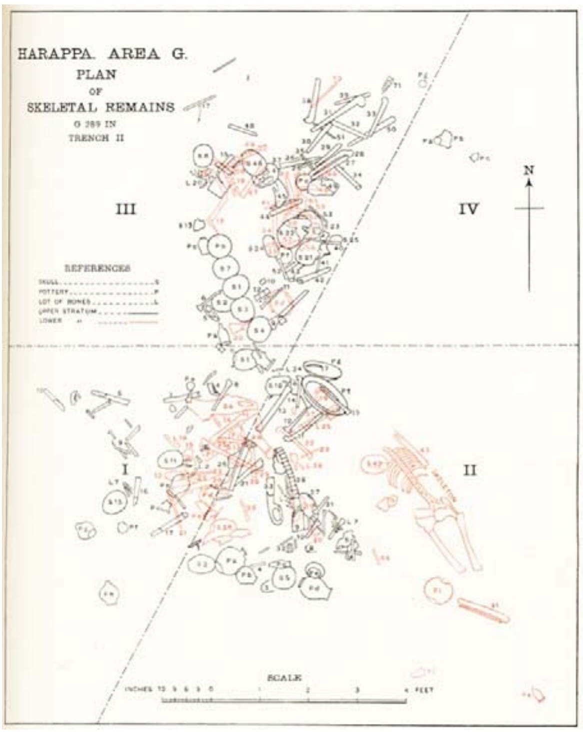


Fig. 4.88: Plan showing burials in Trench II, Area G, Harappa



Fig. 4.89: Remains in Trench II, Area G



Fig. 4.90: Remains in Trench II, Area G

A prominent find from Area G during 1929 was a group of 20 complete human skulls, and parts of vertebrae, mandible, pelvis, legs and arms along with animal bones and a profusion of pottery. This groups has been divided into four parts by Vats, viz., Divisions I – IV, a brief of each is given as under:[162]

Division	**Particulars**	**Pottery and other finds**
I	Four skulls, jaw and long bones between two skulls; large flat animal bone, other bones include two mandibles, fragmentary bones, etc. Two children, one male and one female.	Goblets with pointed base, upper part of an offering's dish
II	Five skulls, two of them placed at the southern part and in a roughly east – west line; third one to the north of above; other skeletal remains include fragmentary bones, mandible, severed head, femur, spine, long bones, etc. One skull near to the body, with remains of femur and vertebrae. Two males and two females and one unidentified.	The first two skulls associated with five vases of which one has three vases of oval base, goblet with pointed base and smaller goblet. Third skull associated with two offerings dishes. Other pottery finds include saucers, cylindrical vase and goblet.
III	Four groups of skulls, having 5, 2, 3, and 2 skulls respectively and one skull lying separately and several fragments of smaller and longer bones. Fragments of leg of an animal also found. Six adult males, one female, four children, three unidentified.	The first group associated with a goblet, vase with ring base, saucer.
IV	No skulls	Only two small vases and a goblet.

Vats surmises that the human bones are found mixed with pottery belonging to the typical Harappa pottery of 'Indus type' along with animal bones like cattle and a large number of pointed base goblets.[163] Vats also suggests a time gap between these findings from Area G and the burials from Cemetery H based on ceramic types, mainly consisting of offerings' dish.[164]


Fig. 4.91: Remains in Trench II, Area G


Fig. 4.92: Remains in Division III, Trench II, Area G


Fig. 4.93: Remains in Division III, Trench II, Area G


Fig. 4.94: Remains in Division III, Trench II, Area G

The remains of any personal ornaments along with the burials could not be found and based on the presence of animal bones and pottery meant for rituals, Vats concludes that the burials were executed as per the traditions and customs in orthodox manner.[165]

Fractional Burials and Post-Cremation Urn Burials

The presence of fractional and post-cremation urn burials was also brought to light from the excavations at Harappa. The remains of a fractional burial was excavated between the III and IV strata in squares Q 24/10 and Q 25/6 in Mound AB at a depth of 3 – 3.2 m from the surface. The burial feature consisted of *"two fragmentary human skulls, one lower jaw and some other bones, a tubular bead of terracotta and one fragment of the base of an offerings dish."*[166] The burial has been placed posterior to the IV stratum buildings and anterior to the occupational levels of III stratum. The burial is also compared with the late III period of Mohenjo-daro.

The presence of a row of 54 earthenware jars at a depth of 4.5 m from the surface in Mound AB extending in an east – west direction is another major find in

terms of funerary features from the habitation area. As the chronology given by Vats, these pots belong to VI period (Intermediate Levels). These pots were kept in a row against a series of house walls located to its south. These pots have been compared with the similar post-cremation burial urns discovered in several areas of Harappa.[167] A majority of these urns were found in a broken condition, except two, and in some cases two or three vessels were found piled one above the other. The contents of these urns have been described by Vats as, *".....bones of small quadrupeds, birds or fish accompanied, in many cases, by some pottery goblets with pointed bases, bowls, saucers and other small vessels, human and animal toys, balls, beads, bangles, toy-carts, wheels, triangular cakes, river shells, decayed grain, ashes and charcoal…"* and compared with the similar finds from Baluchistan.[168] These evidences and several others from sites like Mehi, Dabar-kot, Periano Ghundai, Mughal Ghundai, etc., have been compared by Vats and he points out the similarities in terms of placement of these urns in the habitation areas, nearby the houses as well as in terms of associated funerary goods.[169] These evidences clearly indicate a separate custom of interment and socio-cultural belief during the Harappan times, that extended well into the Baluchistan areas or similar to those areas. This may also indicate the presence of people with similar ritual and burial customs in Baluchistan, Harappa and Mohenjo-daro areas.

In total, areas from Harappa like Mounds F, AB, D, revealed 230 numbers of post-cremation urns, the basal portions of which are narrow to indicate its relevance to be buried in the ground. The context in of these post-cremation urns is within the houses, generally buried beneath the floors; in streets as well as under the drains.[170] The contents of these urns normally consist of *"….bones (in some cases charred) of animals, birds, fishes, etc., in varying quantities…..besides animal bones, an unburnt human tibia….animal bones comprised teeth, joint and long bones, ribs, etc., whole those of birds and other small creatures included jaws, vertebrae, legs and the line. The urns also contained goblets with pointed bases, cylindrical cases, human and animal toys, balls, beads, bangles, miniature lids, toy carts, wheels, triangular cakes, river shells, decayed grain, ashes and charcoal."*[171] Other objects found from the urns include that of a tortoise-shell, charred animal bones, antlers, earth bearing impressions of leaves and decayed grain, vestiges of seeds of melon species and decayed cereals, traces of chaff,

straw and leaves in the earth; discoid faience sealing.[172] A distribution pattern of all the 230 post-cremation burial urns from Harappa is given at Fig. 4. This indicates that Mound F yielded 52% (120 in number) of the urns followed by Mound AB (41%; 95 urns) and Mound D (7%; 15 urns).

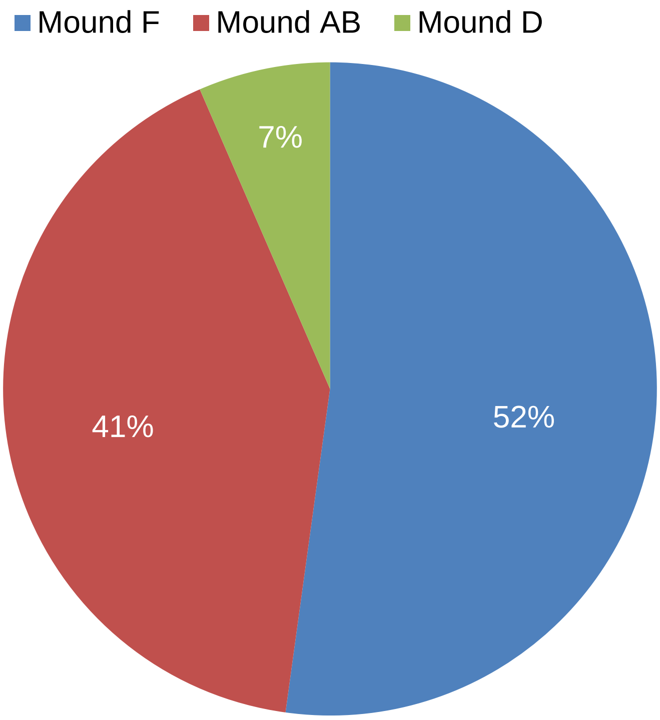


Fig. 4.95: Mound-wise distribution of post-cremation urns at Harappa

Excavation of Cemetery R 37 by K.N. Sastri

K.N. Sastri accidentally discovered the cemetery at the location R 37 in 1937, which was later excavated by him in collaboration with H.K. Bose.[173] Sastri excavated the area continuously for four years and brought to light fifty-seven 'earth burials' of the Harappa Culture.[174] The cemetery was in use continuously over a long period of time and out of the 57 burials, four yielded complete skeletons, five disturbed in antiquity, eighteen disturbed by later period burials, eight cut by tertiary burials and two were not completely exposed.[175] The orientation of the burials is from north – south, with head placed towards the north, with one exception of the head placed towards the south.[176] The burial pits have lengths varying between 3 and 4.5 m; 0.76 and 3 m in width and 0.6 and 0.91 m in depth, and in a majority of the cases, the width near the head portion is wide enough to accommodate the burial pottery, which varied in numbers from 2 – 40 with an average of 15 – 20.[177]

The burial pottery found from the burials has close resemblance with the typology of pottery from that of habitation sites, with some new varieties. The burial pottery consisted of offerings stand (dish-on-stand), goblet with pointed base, oval jar, barrel shaped jar, tall oval jar, ovoid vessel, small oval jar, bulgy ledge necked jar, jar with ledged neck, pyriform vessel, globular vessel, tumbler-shaped cylindrical vase, cylindrical vases, elongated bottle-shaped vase, squat pear-shaped vase, coarse carinated vases, slender cylindrical vases, high pedestalled elliptical vase, flat shallow dish, deep bowl, cup or lamp, circular casket with and without lid, hemispherical lid, oval storage jar, S – shaped jar, large bulbous jar, large storage trough, perforated jar, jar stand, etc.[178]

The pottery from the graves were both painted and unpainted. The other grave furniture consisted of personal ornaments like necklaces of steatite beads, anklets of paste beads, copper earrings, shell bangles and beads of steatite and paste, copper ring, toilet objects like copper mirror, mother-of-pearl shells, antimony rod and a large shell spoon.[179]The burials also contained traces of animal bones, and in one case, bones of a fowl along with a terracotta lamp was found near the head of a skeleton.[180]

4.3.1.2 Excavation by R.E.M. Wheeler in 1946

The excavation in 1946 by Wheeler was concentrated on the probing of defensive walls around Mound AB and the cemeteries. The excavation revealed that the extensive baked brick fortification belongs to the mature Harappan phase and around Mound AB, it marks a rough parallelogram measuring 366 X 183 m, a western gateway and terraces for ceremonial purposes.[181] The defence wall rests and an integral part of an originally existed mud and mud-brick rampart or bund the main function of which is interpreted as to raise the level above the floods.[182] A mud-brick battered wall was constructed over this bund with a basal width of 12 m, which was raised to a height of 10.7 m and reinforced at regular intervals by adding bastions and salients.[183] The interior of the defence wall is characterised by the construction of large mud-brick platforms on which six structural phases of buildings were noticed.[184] The evidence indicated that the defence wall shows three phases of constructional activities, the second one being a repair to the already existing baked brick revetment in particular along the northwestern corner, wherein unlike the previous period of brickbat strengthening, the present one

consisted of high quality baked bricks.[185] The third phase consists of strengthening by adding a salient along with the blocking of two entrances to the western gate.[186]

Wheeler excavated the Cemetery R37 in order to expose more burials in a proper context and to link Cemetery H in terms of stratification.[187] Wheeler also mentions that during the excavation of cemetery in 1937 by K.N. Sastri, which was continued up to 1941, the area designated as Cemetery R 37 brought to light 47 graves while the excavation in 1946 revealed 10 additional ones.[188] The evidence indicate that the cemetery was in continuous use during the Harappan period in which earlier graves were disturbed by later ones, instances of which were noticed in 18 burials wherein later graves disturbed them and in another 8 burials tertiary burials cut through them.[189] The burials were generally extended ones, oriented from northwest to southeast, variations by placing the head between northwest to northeast was noticed, while Sastri noticed one exception of head placed towards the south.[190] The average dimensions of the grave are 3.04 X 0.91-1.22 m with a depth of 0.6 m.



Fig. 4.96: Burials 1 & 2, Cemetery R 37, Harappa

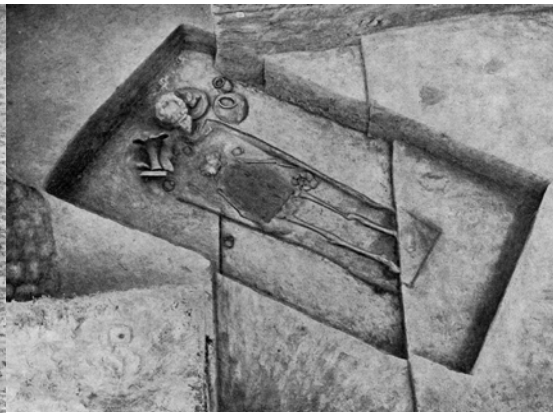


Fig. 4.97: Burial 5, Cemetery R 37, Harappa



Fig. 4.98: Burial 10, Cemetery R 37, Harappa

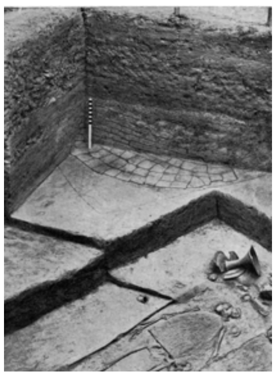


Fig. 4.99: Burial 5, Cemetery R 37, Harappa

The general arrangement of the grave pit indicated that the pottery in large quantities was placed near the head, near the feet and along the sides and occasionally under the body also. The grave pit was also designed in order to accommodate large quantities of pottery near the head portion. The average number of burial pottery from the graves numbered from 15 – 20 while it ranged from 2 – 40 according to the social status of the interred individual.[191] The pottery finds from the graves are also similar to those from the habitation site of mature Harappan period.[192]



Fig. 4.100: Burial pottery from Cemetery R 37, Harappa

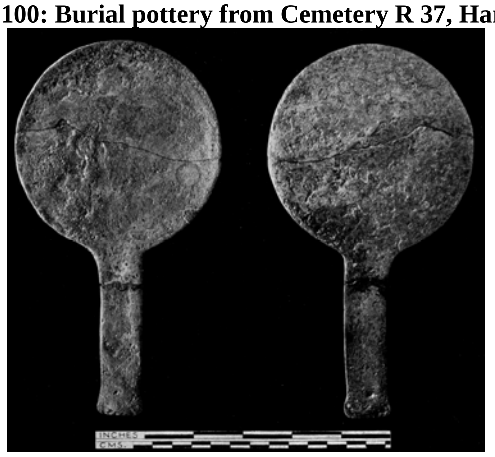


Fig. 4.101: Copper mirror (front and back), Burial 2, Cemetery R 37, Harappa

The personal ornaments found in the graves include copper ring, necklace of steatite beads, anklets of paste beads, ear-ring of thin copper wire, shell bangles, beads of steatite and paste, handled copper mirror, mother-of-pearl shells, antimony stick and shell spoon.[193]The details of the burials excavated at Cemetery R 37 are as follows:[194]

Burial	Particulars	Burial goods
1	Extended burial of a strongly built male, N – S orientation, head towards north and turned to west	21 pots placed near the head, except two; one of which put on the side and other below the body; chert flake and steatite disc bead.

Burial	Particulars	Burial goods
2	West o 1, extended female skeleton, N – S, head towards north and turned to east, legs slightly flexed	21 pots near and around the head, except two, a jar and round water jar found near the legs; disc bead of steatite.
3	Only fragmentary tarsus was found	21 pots, lay mostly on the sides
4	Disturbed by 1 and 2 which overlapped 4; skull and tibia found	11 pots



Fig. 4.102: Burial pottery typology from Cemetery R 37, Harappa

Burial	Particulars	Burial goods
5	Coffin burial, body placed inside a wooden coffin of dimensions 2.13 X 0.61 – 0.76 m (L X W); height could not be determined, evidence of lid in the form of presence of streaks of sticky substance running over the toes; traces of reed shroud from the pelvic girdle to the upper vertebrae; evidence of preservatives in the form of light green substance over the body; extended inside the coffin, N – S orientation, head towards the north and face upwards.	37 pots, most of them placed near the head, some west of the coffin and one inside itself; plain copper ring, shell ring to left of skull and two to the left shoulder.

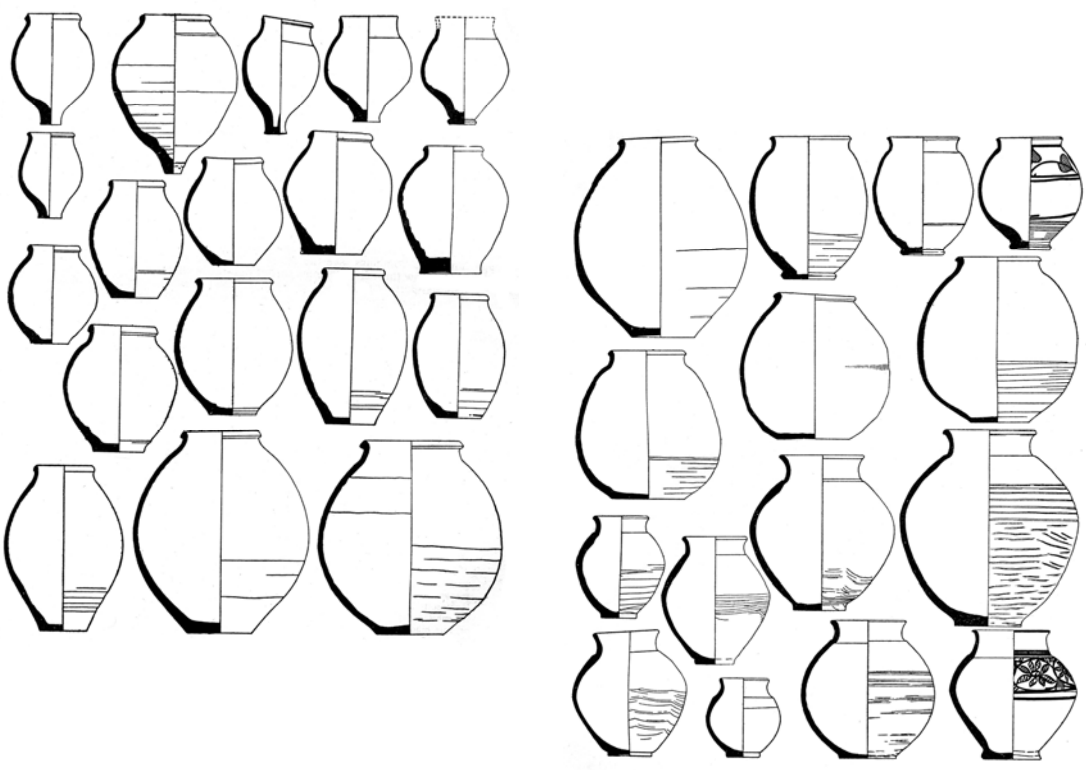


Fig. 4.103: Burial pottery typology from Cemetery R 37, Harappa

Burial	Particulars	Burial goods
6	Badly disturbed, only a few bones of sheep found	Three pots
7	Not probed	Three pots towards the north
8	Only portion of pelvis and femur exposed, an isolated sheep bone	Two pots
9	Disturbed by Burial 4, which overlay partly	15 flat dishes
10	Mud-brick coffin around the body; heaped mud-brick filling towards the southern end of grave; grave shift large (4.6 X 3.04 X 0.91 m); body placed towards the north of pit, N – S orientation with head towards the north.	Two pots of the typical Harappan type.

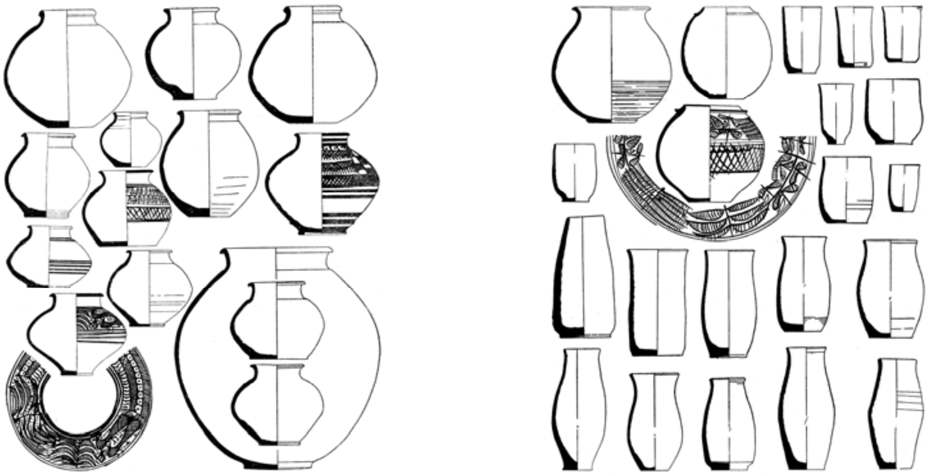


Fig. 4.104: Burial pottery typology from Cemetery R 37, Harappa

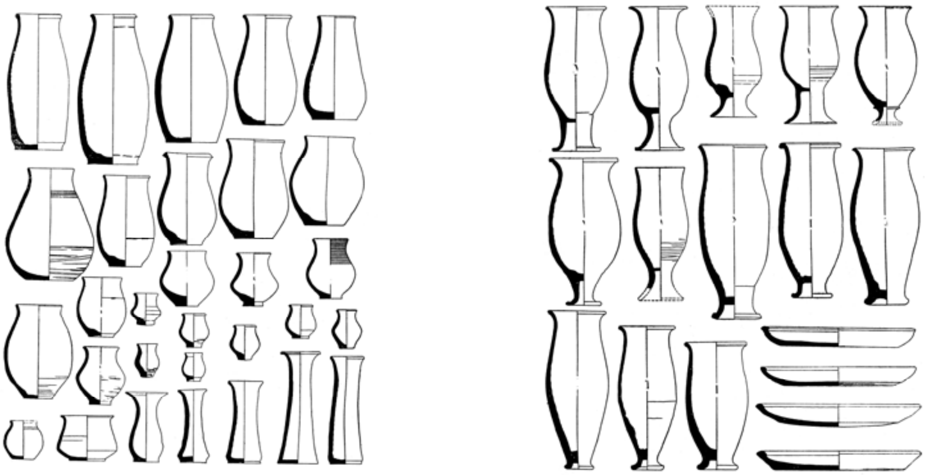


Fig. 4.105: Burial pottery typology from Cemetery R 37, Harappa

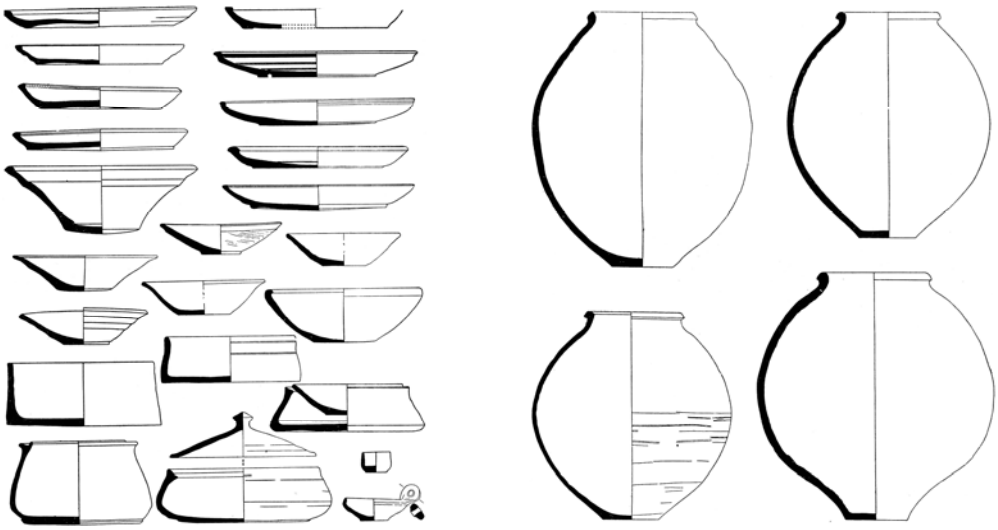


Fig. 4.106: Burial pottery typology from Cemetery R 37, Harappa

Burial pottery types from Cemetery R 37

Wheeler has dealt the typology of the ceramics found along with the burials from Cemetery R 37 in detail.[195] Wheeler observes[196] that the potteries from the burials are contemporary, mostly plain and utilitarian indicating a mass production.

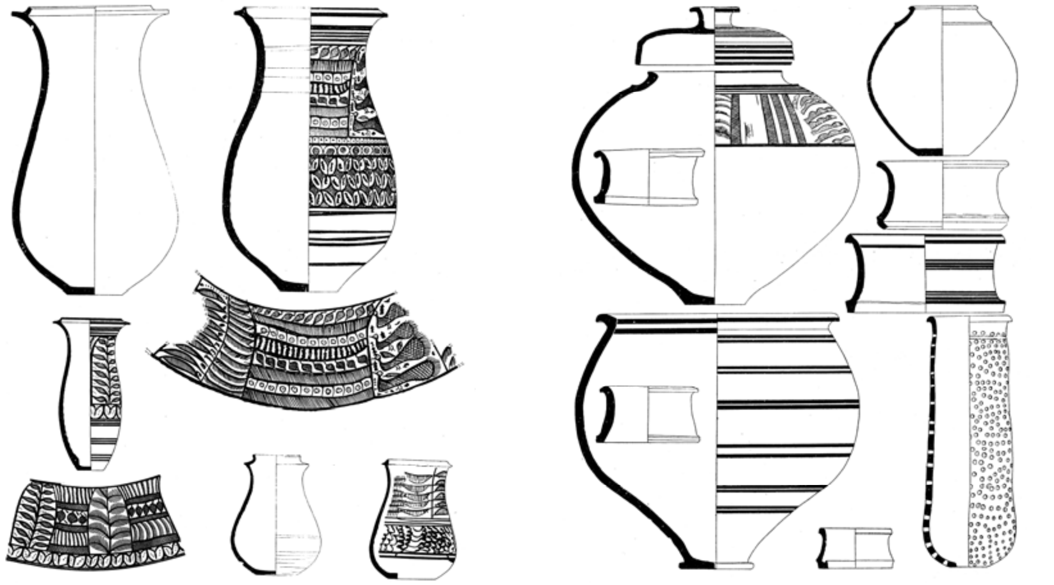


Fig. 4.107: Burial pottery typology from Cemetery R 37, Harappa

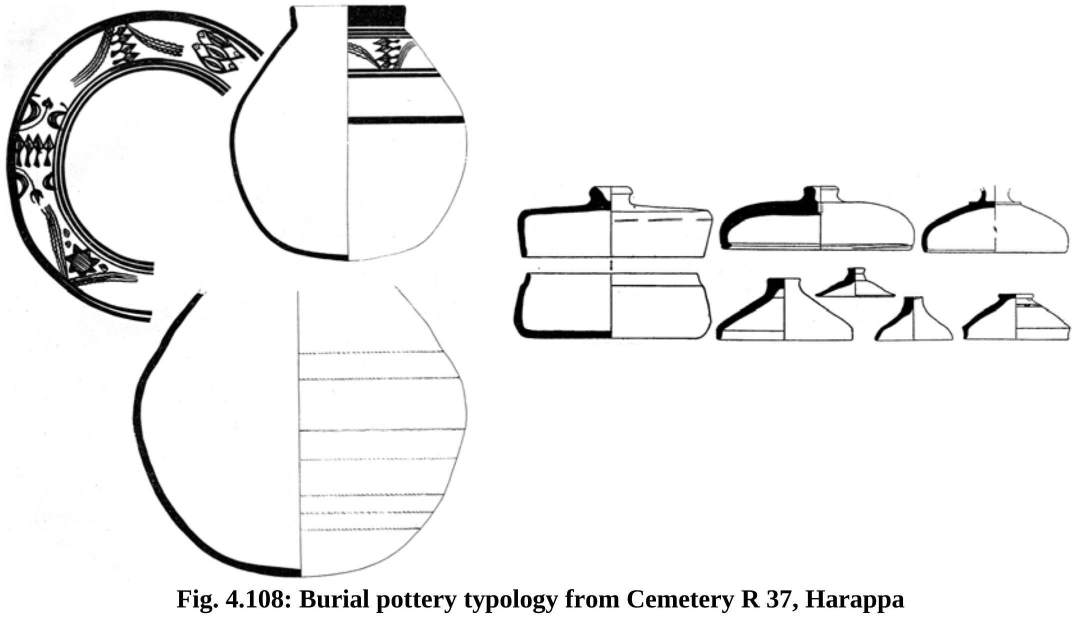


Fig. 4.108: Burial pottery typology from Cemetery R 37, Harappa

The pottery is *"…wheel turned, well-baked, thick and sturdy and has a pale red slip"* and unlike Cemetery H pottery, those from R 37 have very less paintings, and if present, they consist of geometric and linear patterns, comparable with the evidence from habitation sites.[197] A decorative feature resembling the reserved slip was also

noticed on *"….medium and small vases, especially the medium ledge-necked jars.."* executed with a sharp edged instrument.[198] Even though the burial pottery repertoire is stated to be similar to the ones from habitation areas, some new shapes are also reported like certain vase types, cylindrical beaker types and casket types.[199]

4.3.1.3 Excavation of Cemetery R 37 in 1966

Mughal reports that between the excavations of Sastri in 1937 and Wheeler's excavation at Cemetery R 37, remains of 57 burials were unearthed which brought to light four complete graves with human skeletons and a host of burial furniture.[200] The excavation by Mughal in 1966 brought to light 11 burials in the Cemetery R 37 area including two female ones and a child burial.[201] The general orientation of the burials is from north – south, lying extended except one burial in which the body was placed with upward folded legs and left hand placed across the body and touching the chin.[202] The evidence also shows that two of the burials were lined with mud-bricks, while one burial covered with a pile of mud-bricks.[203] The excavation brought to light the nature of interment of the deceased individuals also. The pit was dug into the hard and compact natural soil and the dead laid in a layer of soft earth below it.[204] It was also revealed that the ancient surface level slopes in a southwest – east / northeast direction. One of the female burials brought to light a rich collection of burial goods in the form of anklets and a girdle made of numerous disc shaped ivory beads.[205] An interesting find from the child burial is the placement of miniature vases of the shape type and form of bigger vessels found in adult burials.[206]

4.3.1.4 Excavation carried by UCB / HARP

The renewed excavation carried out by the University College, Berkley (UCB) / Harappa Archaeological Research Project (HARP) at Harappa from 1986 onwards has enabled in redefining the chronology of the site and various aspects related to the earliest occupations, growth and development. The chronology of Harappa has been defined in 1997[207]and later in 2001[208] as follows by Kenoyer:

Period 1A and 1B	Early Harappan / Ravi Phase	c. 3300 (?) – 2800 (?) BCE
Period 2	Early Harappan / Kot Diji Phase	c. 2800 (?) – 2600 / 2500 BCE

Period 3A	Harappan Phase A	c. 2600 / 2500 – 2450 / 2400 BCE
Period 3B	Harappan Phase B	c. 2450 / 2400 – 2200 BCE
Period 3C	Harappan Phase C	c. 2200 – 1900 BCE
Period 4	Harappan / Late Harappan Transitional	c. 1900 – 1800 (?) BCE
Period 5	Late Harappa	c. 1800 (?) - < 1500 BCE

Possible Neolithic Settlement

The discovery of a single small disc bead made from *Spondylus* shell from a street deposit of the lower levels of Period 3 has been compared to similar finds from aceramic Neolithic levels from Mehrgarh (c. 6500 – 4500 BCE).[209] The presence of similar beads from only the Neolithic levels of Mehrgarh and disappearance from later levels led Kenoyer to surmise that there could be a possibility of a Neolithic settlement near Harappa.[210]





Fig. 4. 109& 4.110: Ravi period occupations, Mound AB, Harappa

Period 1A and 1B (Ravi Phase)

The occupational deposits assignable to 'Ravi Phase' was found *"….at the base of the northern portion of Mound AB."*[211] The occupational deposits of this Period 1A and 1B consist of 4.5 m and the ceramics found from this level corresponds to Jalilpur I wherein it has been assigned to the Hakra Wares culture.[212] Kenoyer and Meadow conclude on the basis of analysis of ceramics from Harappa, Jalilpur and other sub-regional sites of Hakra Wares culture that those from Harappa are distinct from other regions and hence designate a separate name as "Ravi Phase".[213] The occupants of Period 1A settled on the natural soil towards the northern side of Mound AB and the associated finds of this period include an oval hearth dug into the natural soil along with a circular pit plastered with chaff-tempered clay.[214] The ceramics of this period consist of *"….hand-built….finely made shallow bowls, deep bowls, large carinated vessels, or thick-walled cooking pots covered with a slurry of coarse sandy clay mixed with calcium carbonate nodules and some pebbles."*[215] The painted motifs were found on large carinated vessels, deep and shallow bowls consisting of geometrical and floral ones executed with white, red-brown or purple-brown paint.[216]



Fig. 4.111: Ravi phase pottery, Harappa



Fig. 4.112: Ravi phase pottery, Harappa

In addition to this, vessels with dark brown slip and some with brownish-black designs executed on a buff surface were also noticed.[217] The cooking pots are different from other vessels in which the portion below the shoulder is treated *"....with a slurry of coarse sandy clay mixed with calcium carbonate nodules and some pebbles."*[218] This treatment has been compared with similar ones on Hakra wares from Cholistan albeit variations in shapes of the rims, inclusions in the slurry are noticed.[219] Some of the painted motifs on ceramics like bird and net designs are compared with Sheri Khan Tarakai, while the geometric and floral ones are compared with Periods 1 and 2 of Rehman Dheri.[220]



Fig. 4.113: Ravi phase pottery, Harappa



Fig. 4. 114: Ravi phase pottery, Harappa

The other significant painted motifs, which emerge in Period 1 and continue in Period 2 unlike other painted motifs, are intersecting design executed in polychrome and fish-scale motif in light red-brown on buff.[221] This period also witnessed the emergence of an agate bead-making industry on the natural surface and consisted of *"……numerous jasper drills, agate flakes, and unfinished agate beads"* on *"surfaces with lithic debris separated by layers of silty wash."*[222] The other aspects associated with this period are terracotta beads, bangles, figurines; bone working, *"…glazed steatite making, stone bead manufacture, shell-bangle making and possibly copper working."*[223] The transition from Period 1A to 1B is from the Ravi Phase to the Kot Dijian Phase, which is characterised by the introduction of wheel-made pottery and painted motifs and patterns identified with the Kot Dijian ceramics. The ceramic industry consisted of red slipped ware with black motifs like fish-scale, *pipal* leaf, intersecting circles along with some pottery with multiple pigments such as red, brown, black, white.[224] The evidence of inscribing on pottery before and after firing is also found and it has been identified that the end of Period 2 some of these sings represents early form of Harappan writing forms.[225]



Fig. 4.115: Terracotta artefacts, Ravi phase



Fig. 4.116: Steatite artefacts, Ravi phase



Fig. 4.117: Bone artefacts, Ravi phase



Fig. 4.118: Stone artefacts, Ravi phase

The interaction of Harappa during this period with sites of eastern Baluchistan is put forth due to the appearance of certain non-local ceramics that are comparable to Quetta Wet Ware, Damb Sadaat black-on-buff, a painted bowl similar to the ones found at Lal Shah near Mehergarh.[226] The other prominent finds of this period include that of mud-brick structures oriented in cardinal directions, the bricks being in 1:2:4 ratio, evidence and establishment of long distance trade *"....with coastal regions to the south, the agate and amazonite sources in Gujarat and Rajasthan, the lapis lazuli sources to the west in Baluchistan and Afghanistan, and copper resource source areas in Baluchistan and/or Rajasthan."*[227]



Fig. 4.119: Shell artefacts, Ravi phase



Fig. 4.120: Graffiti on pottery, Ravi phase



Fig. 4.121: Graffiti on pottery, Ravi phase



Fig. 4.122: Graffiti on pottery, Ravi phase

Period 2 (Kot Dijian Phase)

The excavation in the northwestern portion of Mound E brought to light the remains of 2.5 – 3 m occupational deposit associated with two small kilns underlying a Harappan period burnt-brick drain. The finds from this period include *"....hearths, accumulations of domestic debris, and traces of mud-brick walls."*[228]The orientation of the mud-brick walls is northwest – southeast with a deviation of 10^0 west of north.[229]

One of the walls is made of smaller bricks (7 X 12 X 34 cm) and another wall of bigger bricks (10 X 20 X 40 cm) in 1:2:4 ratios.[230] Another prominent find is remains of two large mud-brick walls, identified as *"retaining or retaining or perimeter walls."*[231] One of the walls run in a northwest – southeast direction for over 15 m with a width of 2 m and an extant height of 2 m, the eastern extension of which was found in an eroded condition.[232] The second wall was constructed *"after"* the above wall, the eastern extension of which could be traced to about 4 m with a width of 2.5 m.[233]





Fig. 4.123 & 4.124: Kot Dijian Phase occupations, Mound E, Harappa



Fig. 4.125: Kot Dijian phase occupation



Fig. 4.126: Terracotta artefacts *in situ*, Kot Dijian phase

An interesting feature in the construction of these *"retaining or revetment or perimeter walls"* is the large-scale usage of mud-bricks of different distinct colours of

clays, the reason for which is interpreted as an early form of Harappan social organisation in order to achieve such a massive construction of walls involving large number of labourers as well as preparation and transportation of vast quantities of mud-bricks from different nearby localities.[234]



Fig. 4.127: Diversity in raw materials, Kot Dijian phase

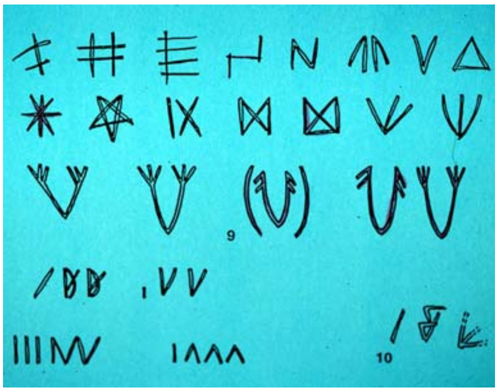


Fig. 4.128: Early Indus writings, Kot Dijian phase

These massive walls exhibit eroded features on the exterior while the interior is comparatively well preserved which has been interpreted due to its usage as *"retaining or revetment walls or foundations"* and as a protective measure against the floods and unwanted intruders.[235] This period is also characterised by five – six different walls constructed of mud-bricks of 10 X 20 X 40 cm size and associated with early Harappan pottery, the lower three – four walls were either resting on natural soil or having foundation trenches into the early Harappan deposits.[236]





Fig. 4.129: Steatite geometric seal (left); 4.130: Steatite seal with house design (centre); 4.131: Unfinished seal with elephant motif (right), Kot Dijian phase

The excavation along the southern slope of Mound E brought to light the remains of Koti Dijian occupation levels characterised by mud brick walls, the earliest found resting on the natural level, while the second was found fallen, and superimposing these two walls are a succession of laminated silt and ash deposits and several hearths corresponding to 1.5 m deposit.[237]

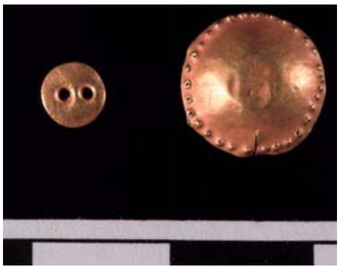




Fig. 4.132: Sealing and limestone weight (left); 4.133: Gold artefacts (centre); 4.134: Faience micro beads (right), Kot Dijian phase

These structures are found in association with a north – south street, the pattern of which was noticed continuing even in the Harappan levels. The street is also marked by the presence of cart tracks right on the natural soil and hence indicates its continuous use from Period 2 onwards at this part of Mound E. The ceramic industry associated with this level consisted of painted pottery of forms and shapes comparable with the other early Harappan sites like Kot Diji, Sarai Khola, Rehman Dheri II, Jalilpur II.[238] The artefact finds include that of steatite button seals, unfinished steatite seal with elephant motif, cubical limestone weight, beads of gold, steatite, terracotta, faience and agate, terracotta figurines consisting of animal and anthropomorphic ones distinct from Mature Harappan ones & bangles (red and grey fired varieties), copper and bone tools; dark greyish chert blades, stone celt, stone beads.[239,240,241] Evidence for pre and post firing graffiti along with incised marks on pottery increases during this period some of which could be traced in the development of Harappan script.[242] The objects indicating long distance trade like Rohri chert, sandstone pestles and grinding stones from probably Sulaiman ranges are also found. The evidence from the ceramics indicate a slow transformation of Ravi phase to Kot Dijian one with some unique Harappan forms and shapes not noticed elsewhere. Further, the excavators surmise that the Harappan material culture at Harappa was an outcome of the earlier Kot Dijian material culture and not introduced from elsewhere.[243]

Period 3 (Harappan Phase)

The excavations have enabled in the identification of three sub-periods of Harappan phase, which represents building construction phases, urban growth and decay.[244] The occupational deposit of Mature Harappan phase has been found from all over the mound areas at Harappa and the excavations in Mound E demonstrated that the

deposits of this phase directly overlies the Period 2 deposits with no discontinuity albeit some changes in the urban processes.[245] This period is marked by the construction of massive retaining walls of burnt bricks over the mud-brick walls of Period 2 and also construction of mud-brick platforms.[246] While the retaining walls were made of both burnt bricks and mud-bricks the mud-brick platforms were found along the northern slope, which served the dual purpose of consolidation of the edge of the mound as well as to serve a firm foundation for later structures.[247] A massive freestanding mud-brick wall constructed directly on the sloping nature of natural soil along the southern slopes of Mound E was also unearthed, the construction methodology of which along with bonding of mud-bricks has been found identical with that of Period 2, which is interpreted as continuity from previous period.[248]

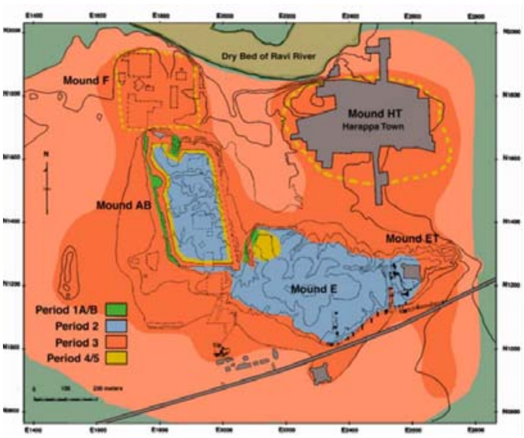
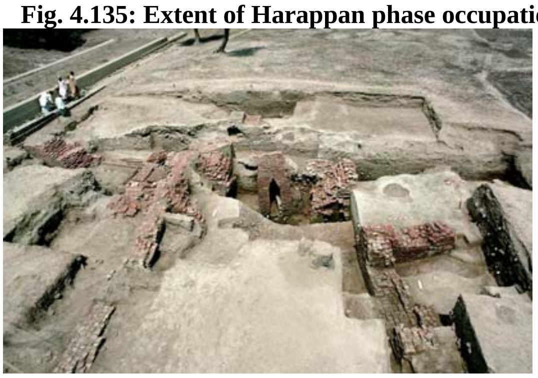




Fig. 4.135: Extent of Harappan phase occupation (left); 4.136: Latrines (right), Harappan phase



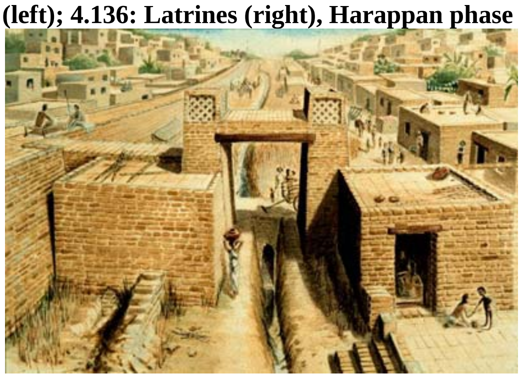


Fig. 4.137: Remains of gateway complex, Mound E (left); 4.138: Reconstruction of gateway of left (right), Harappan phase

A gateway measuring 2.8 wide was found piercing this massive wall which is also associated with an east – west street the deposits of which is consolidated by laying crushed pottery.[249] A major north – south running street of 5 m width was exposed in

the interior of this wall, which runs directly above the street of Period 2. The street is considerably wide when compared to Period 2, houses constructed of burnt bricks, and brick drains were found all along the street.[250] The ceramics associated with the above occupational deposits are the typical Mature Harappan type and the findings from Harappa have been compared with the previous excavations at Harappan as well as from Mohenjo-daro.[251] The other artefactual findings in association with distinct building styles and ceramics from this period are, *"....intaglio steatite seals, inscribed steatite tokens, faience tokens, inscribed pottery, tan-brown chert tools, stone weights, terracotta cones, distinctive figurines, toys and painted pottery."*[252] The evidence of two pottery kilns in the northwestern portion of Mound E and directly above those of Period 2 kilns indicate occupational continuity.[253]



Fig. 4.139: Circular brick platforms



Fig. 4.140: Remains of faience and steatite workshop



Fig. 4.141: Seal with unicorn and tablets with similar script found together







Fig. 4.142: Faience tablet (left); 4.143: Silk inside wired necklace (centre and right)

The excavation at the west-southwestern portion of Mound E brought to light artefacts like terracotta-moulded tablets identical with the ones previously found from other parts of the mound, which is interpreted as contemporaneous occupation of the mound and also socio-cultural interactions between different communities living within the city.[254] The excavation further brought to light a large complex of rectangular rooms constructed of mud-bricks along with divider walls, intervening streets and lanes.[255] This complex is associated with industrial wasters such as steatite bead industry and pottery kiln dumps. Another trench along the southern slope of Mound E revealed the remains of faience workshop in the form of debris consisting of large quantity of finished and unfinished faience beads, consecutive layers of slag related to faience bead production and canisters, vitrified faience wasters, etc.[256] The faience workshop also brought to light artefact remains like *"....chert blades, lumps of sawn steatite, bone tools, terracotta cakes, large masses of vitrified faience slag with whitened bone.....some ....had drops of greenish to light blue glaze……fragments of vegetable tempered canisters, conical setters with splayed ends and thick disc-shaped lumps that may have been used as kiln setters…."*[257] The evidence from the workshop further indicated that the craftsmen were involved in the manufacture of both steatite and faience artefacts.

The excavation along the northeastern portion of Mound E outside the perimeter wall revealed more than 150 inscribed objects consisting of both seals and tablets.[258] The excavation in the interior of perimeter wall brought to light three major building activities along with remains of floors and hearths, datable to Period 3C.[259] The excavation of Mound F between 1996 and 2000 brought to light the occupational deposits pertaining to Periods 3B, 3C, 4 and 5. The evidence gathered from the excavations indicate that this area was extensively mined for clay deposits during Kot Dijian phase and Period 3A and the depression caused due to large-scale mining was used as a dumping ground during initial stages of Period 3A and only from Period 3B (c. 2450/2400 BCE) this area was occupied substantially and a massive mud-brick perimeter wall was constructed.[260] Based on the substantive findings of inscribed material from this part of the city, it has been interpreted that by Period 3C this area was occupied by *"……prosperous individuals who were interacting with communities from*

other parts of the city……as well as with distant resource areas such as Central Asia and the Arabian Sea."[261] The important findings from this area include "numerous craft items and inscribed objects", steatite seals, copper tablet with raised script, stoneware bangle, truncated spherical agate weight, alabaster ring stone, terracotta figurines, stone beads and shell inlay pieces.

Period 4 (Transitional from Mature Harappan to Cemetery H)

The deposits of what has been interpreted as a transitional phase from Mature Harappan to Cemetery H are found from Mound E as well as Mound AB. The period has been designated primarily based on ceramics and artefact types and some of the burials from R 37 as well as some early burials of Cemetery H are assigned to this period.[262]

Period 5 (Cemetery H)

The occupational deposits of this period are found from the mounds AB and E, are characterised by ceramics of Cemetery H type, drains, and burnt bricks the sizes of which are smaller than the preceding period.[263] It has been surmised that the Period 5 at Harappa represents only a change in "*focus of settlement organization from that which was the pattern of earlier Harappan phase and not cultural discontinuity, urban decay, invading aliens, or site abandonment…."*[264]

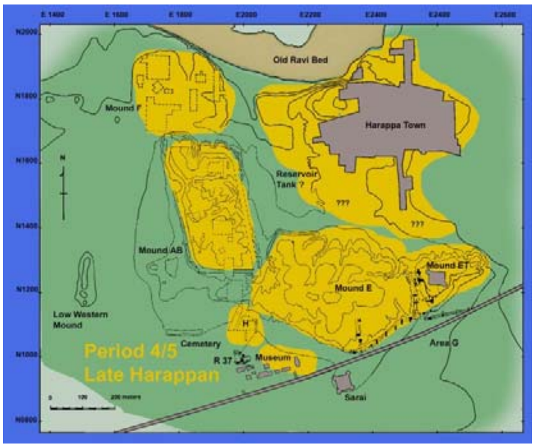


Fig. 4.144: Extent of late Harappan phase



Fig. 4.145: Baked brick structure, late Harappan phase





Fig. 4.146: Baked brick structure, late Harappan phase

Fig. 4.147: Beads of different materials, late Harappan phase

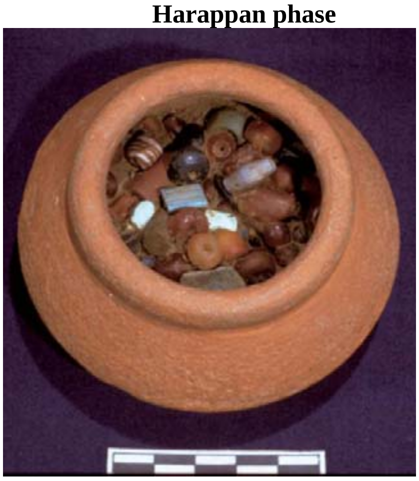




Fig. 4.148: Bead collection in a pot (left); 4.149: Beads after cleaning (right), late Harappan phase

Evidence from Cemetery R 37 under excavation from HARP

As mentioned above, the cemetery located to the south of Mound AB was located and excavation for the first time by K.N. Sastri between 1937 and 1941 during which he brought to light remains of 64 burials. The subsequent excavations by Wheeler in 1946 and Mughal in 1966 brought to light 10 and 16 burials respectively. The University of Berkeley (UCB) / HARP renewed the excavation in this area during 1986-88 and 1994 revealed around 179 burials. The area immediately to the south, east and west of the already known cemetery area was probed through test pits and it was confirmed that the cemetery had an extension towards the south and western directions.[265] The number of burials excavated by various excavators and teams is given below in order to understand the location-wise distribution of burials that were excavation previously.

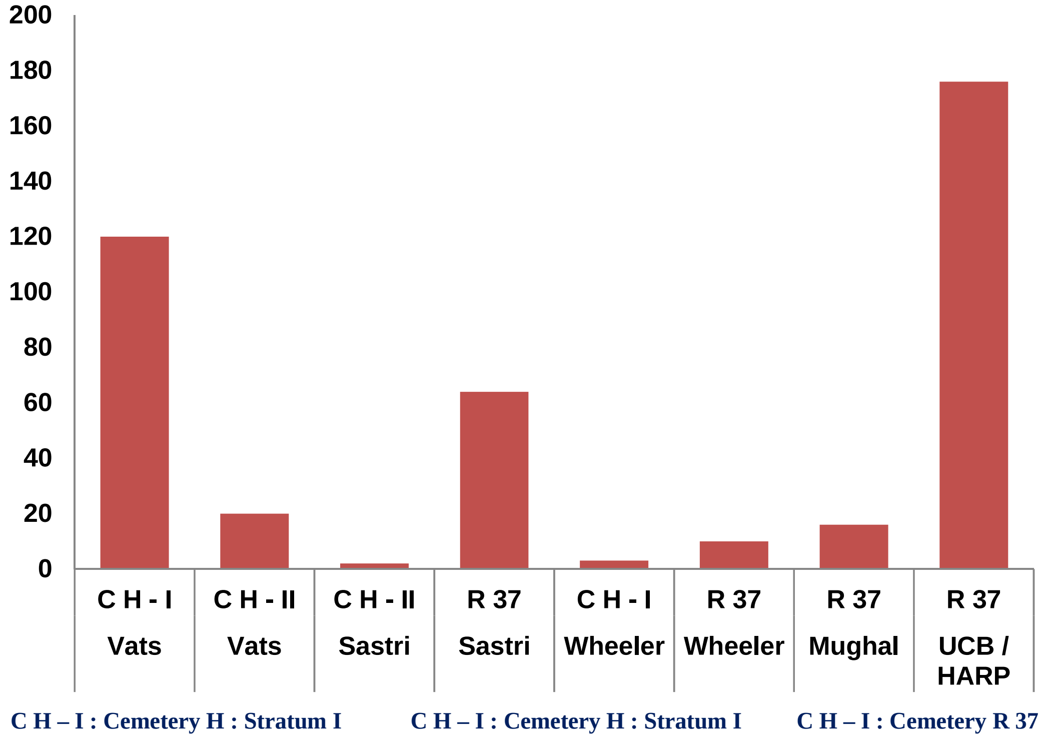


Fig. 4.150: Number of burials excavated during different excavations, Harappa

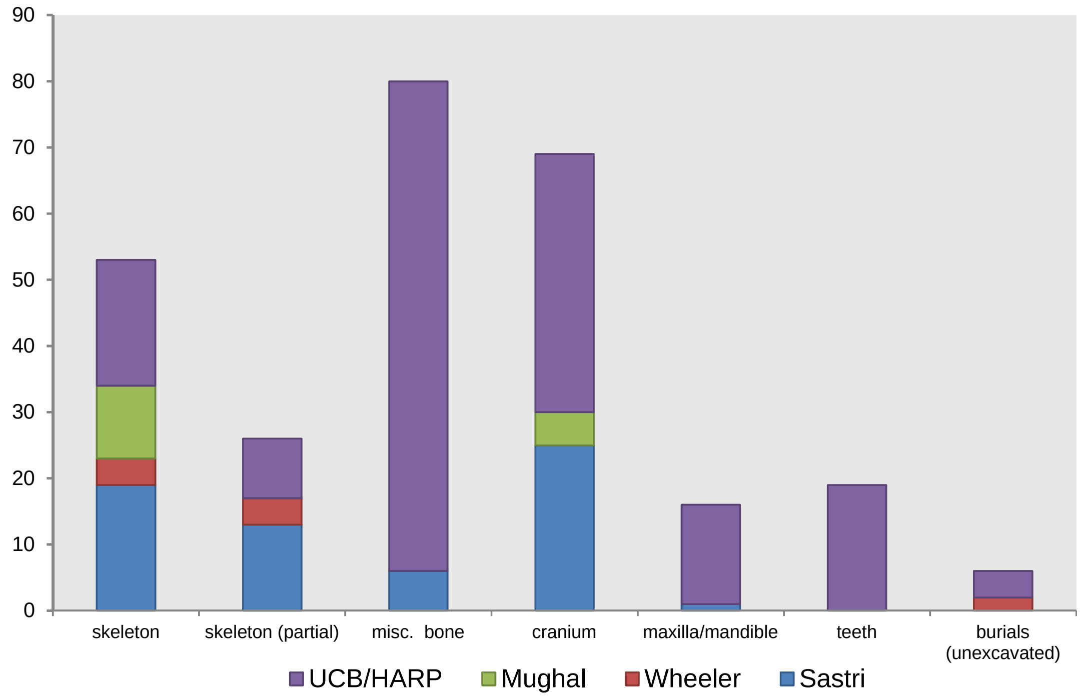


Fig. 4.151: Context of burials excavated during different excavations, Harappa

The UCB / HARP excavations have brought to light during 1986-88 and 1994 has brought to light around 179 burials of various contexts and types. A comparative

chart on the context and types of burials by different excavators by Kenoyer (*personal communication*) also helps in understanding the season-wise distribution. A comparative chart showing the season-wise distribution of various typologies and context of burials is given above for better understanding. The categories based on which the context is decided are skeleton, skeleton (partial), miscellaneous bone, cranium, maxilla / mandible, teeth, burials (unexcavated). A cursory look into the chart clearly indicates that the burials have been disturbed in the past due to various reasons. Thus the category miscellaneous bones, cranium, maxilla / mandible and teeth dominate the overall skeletal collection. It is also interesting to note here that the cemetery was in continuous use in the past and hence the burials of earlier period were constantly under threat by the gravediggers of later periods.

The test probes on various directions to the known cemetery area have enabled in identification of the overall extent of the burial area. However, the excavators also have not ruled out the possibility of other cemetery areas in other parts of the ancient site.[266] The investigations have revealed that the ancient contour in the cemetery area of the Harappan period slopes in a south – north and west – east direction due to natural erosion of what might be a Pleistocene terrace or ridge.[267] The Harappan period burials have been dug into this terrace or ridge and in other areas repeated eroded debris and burials of different thickness form a deposit over the natural soil. The continuous accumulation of debris belonging to the Harappan period is also noticed over the cemetery area, and the local farmers have largely removed this debris through scraping in the area to the west of the main cemetery area and reached the natural alluvium thereby reaching the top level of cemetery at many places. The excavators noticed the various crop mark patterns running in a north – south direction that resulted in the location of burials in this area.

The probing of the cemetery are brought to light three major layers / levels, viz., **debris layer, erosion layer and natural soil**. The topmost layer is the **debris layer** which consist of a massive debris composed of enormous quantities of pottery of Harappan period and the excavators estimate that out of the pottery, 40% belongs to pointed base goblets.[268] This enormous dump is dated to the Mature Harappan period by

the excavators and estimates their origin from the habitation mounds lying to the north and northeast, and is a deliberate action of disposal and not a natural accumulation.[269] The debris is composed of *"....over fired clay nodules, charcoal, animal bones, and a range of small artefacts of stone, paste, faience and terracotta……"*.[270] The succeeding deposit is the **erosion layer** composed of *"....fine sandy silts and silty clays, with gravelly layers made of tiny potsherds and broken artefacts such as steatite disc beads."*[271]

The deposit also consists of eroded human bones and from ancient deposits, based on which the excavators conclude that the *"...accumulation of debris and the erosion of parts of the cemetery were contemporaneous."*[272] The erosion layer overlies the natural soil that is composed of *"....a well-developed soil of fine sandy silt to silt-clay loam, yellow-brown to light brown, with distinct horizons of calcium carbonate nodules* (*kankar*)."[273]

Burial Typology

The burial typology[274] as defined by the excavators in 1989 is as follows:

(i) *Primary Burials;*

(ii) *Secondary Burials;*

(iii) *Secondary Context / Fill and*

(iv) *Secondary Context / Wash or Secondary Context / Debris*

(i) Primary Burials

The majority of the burials from R 37 are primary burials and are found along the east – west ridge marking the undisturbed Harappan contour.[275] The burials are found in a north – south orientation and in distinct rectangular pits. A majority of the primary burials are extended and supine, head placed towards the north and feet at the south of the grave pit. Their orientation also varies between 9^0 east and 2^0 west of true North.[276]

(ii) Secondary Burials

Only one secondary burial is from the western section of the cemetery area at Harappa.

(iii) Secondary Context / Fill

The excavators have documented evidence of digging of grave shafts disturbing the ancient graves that are present already and due to this process a considerable number of such burials have been disturbed. During the process of digging a new grave shaft and disturbance of an already existing one, the debris from the older one is often deposited adjacent to the fresh burial and used in its filling. This has been documented from several burials in which fragments of bones, and in some instances longer bones and in one case, a complete skull was found in a secondary context.[277] These have been termed as a different category of secondary context / fill and differentiated from the secondary burial.

(iv) Secondary Context / Wash or Secondary Context / Debris

The excavators also document a context in which the eroded human bones from a burial are deposited on the surface of the cemetery, which is subsequently covered by the debris of various origins. Such occurrences of human bones between the interface between the eroded cemetery surface and the subsequent debris have been categorised under this type and not treated as a part of the debris.[278]

Other characteristics of the burials

The evidence of wooden coffins is also found from many graves in the form of dark stained soil even though remains of wood could not be found.[279] These coffins measure approximately 1.7 – 1.9 m in length and 0.5 m wide while the thickness of the walls measure 2 – 3 cm. The excavators also noted the possibility of wooden lids on coffins from two burials. The burial goods consisted in the form of pottery, both painted and unpainted. It has been observed that the painted pottery in the burials belong to the earliest phase of burials and the proportion of painted pottery decreases in the later phases along with unslipped ones.[280] The general placement of the burial pottery is also interesting. The pottery is placed near the head as well as the foot of the body. Instances of placing the burial pottery at a lower level in respect to the body are also

found. In such instance, the burial pottery was placed on the bottom of the shaft and covered with soil up to its top. The body was placed above this level and then again covered with soil. The evidence from the burials also indicates that due to the heavy soil cover the body and the burial pottery is crushed and they are found in a disturbed condition.[281] The burial pottery also shows that the early level painted pottery were covered with a red slip and fired while the later period ones were covered with a gypsum plaster.[282] The intentional covering of the pottery with some kinds of plaster is compared with the ethnographic parallels available in India by the excavators wherein the painted patterns on pottery is only enjoyed by the living and a taboo for the deceased individuals.[283] The personal belongings found in the burials range from various objects like *"…shell bangles, a copper ring, steatite / serpentine disc beads, carnelian and lapis lazuli beads, short cylindrical gold beads, black stone amulets and a unique head ornament made of three shell rings, a jasper bead and numerous strands of thousands of steatite micro beads."*[284]

A brief of some of the important burials is given below:

Burial / Lot / Feature	Particulars	Burial goods
Lot 220 / Feature 220a	Adult male in a coffin, top of the burial is piled up earth containing skull and several animal and human bones from earlier burials.	No ornaments, 9 pottery vessels lined near the head.

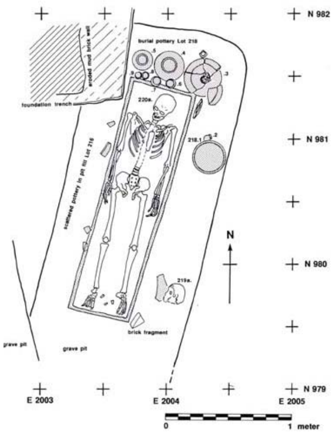




Fig. 4.152, 4.153: Burial 220 a (left & centre); 4.154: Burial Pottery (right), Cemetery R 37, Harappa

Burial / Lot / Feature	Particulars	Burial goods
Lot 198 / Feature 200a	Adult female in a coffin.	Ornaments consist of 2 shell bangles on left arm and 5 carnelian

Burial / Lot / Feature	Particulars	Burial goods
		beads near the pelvis; 9 pottery vessels found beneath her.

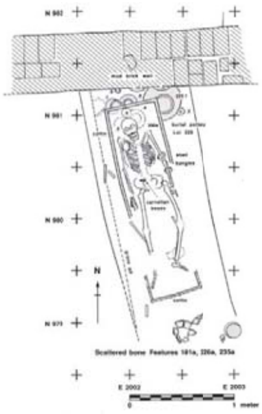






Fig. 4. 157: Shell bangles on left hand

Fig. 4.155 & 4.156: Burial 200 a, Cemetery R 37, Harappa

Burial / Lot / Feature	Particulars	Burial goods
Lot 136 / Feature 147a	Adult male in a coffin	Ornaments consist of a shell bangle on left wrist and a carnelian bead near right hand; an elaborate ornament group was lying to his right consisting of 2 / 3 shell beads, 1 jasper bead and 1000s of tiny micro beads twisted in circlets or bunches; burial pottery consist of over a dozen vessels at the head and additional vessels along the side of pit.

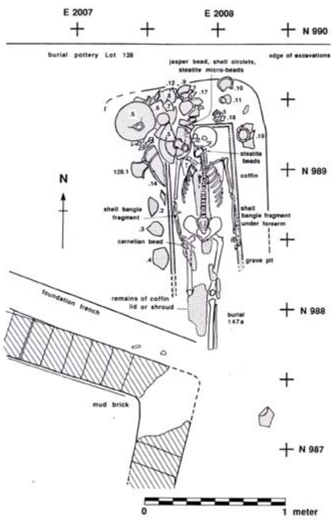




Fig. 4.158 & 159: Burial 147 a, Cemetery R 37, Harappa

Burial / Lot / Feature	Particulars	Burial goods
Lot 197 / Feature	Burial of an adult female and	Lead / orpiment rod (orange to yellow

Burial / Lot / Feature	Particulars	Burial goods
194 a & b	child; death may be after childbirth; no coffin, disturbance after interment.	mineral) near head, identified its use as pigment for personal decoration; pottery consisting of 33 vessels near the head and along the body.

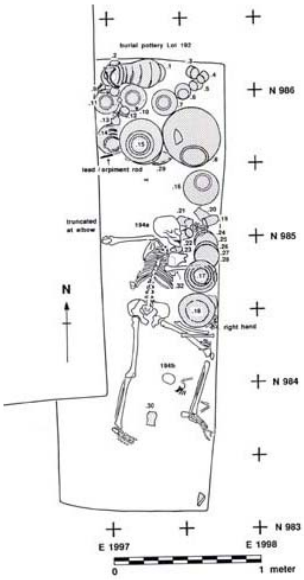




Fig. 4.160 & 4.161: Burial 194 a, Cemetery R 37, Harappa

Burial / Lot / Feature	Particulars	Burial goods
Lot 194 / Feature 196a	Old adult male in a coffin, might be wrapped in a shroud tightly.	Ornament consists of a necklace made of 340 steatite disc beads, 3 beads of jasper, onyx and faience with gold finials; pottery consist of plain / red slipped wares, and 2 unfired pots.

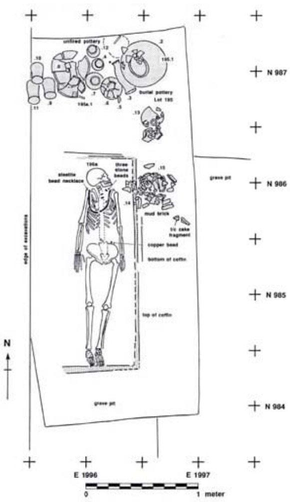




Fig. 4.162& 4.163: Burial 196 a (left and centre); 4.164: Details of ornaments, Cemetery R 37, Harappa

Burial / Lot / Feature	Particulars	Burial goods
Lot 145 / Feature 156a	A disturbed burial, with bones mixed up; a complete burial assemblage, one of the later burials characterised by elaborate painted designs on globular jar with ridged shoulder and large cylindrical jar; NE – SW orientation.	Pottery assemblage placed near the head as well as to the right of the body; the total assemblage consists of 18 vessels, 2 lids and 2 ring stands.
Lot 114 / Feature 127a	A complete burial in NE – SW orientation; burial pottery placed near the head and only a large ridged globular jar with a lid and ring stand near the feet; also a later burial.	The pottery assemblage consists of 12 vessels, 3 lids and 2 ring stands; The pottery types noted are large jar, tall medium jars, large globular jars, medium globular jar, jar-on-stand, pot-on-stand, dish-on-stand.

A brief of some of the burial types are discussed above to have an idea of the basic patterns in disposal of the dead during the mature Harappan period at Harappa.

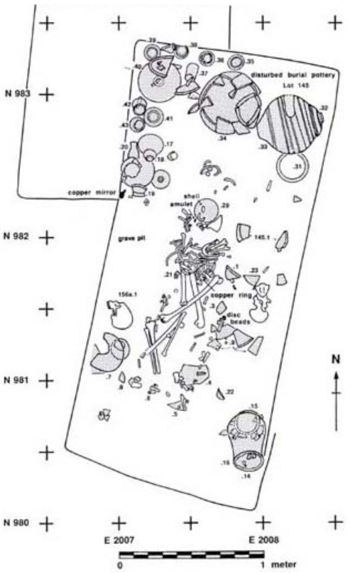


Fig. 4.165: Burial 156 a, Cemetery R 37, Harappa

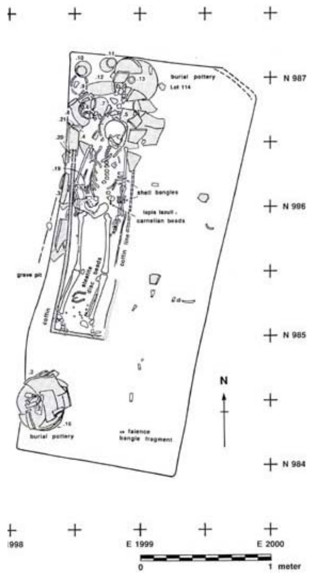
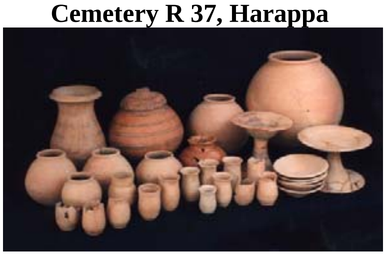




Fig. 4.166& 4.167: Burial 127 a, Cemetery R 37, Harappa



4.168



4.169



4.170



4.171



4.172



4.173



4.174



4.175



4.176

Fig. 4.168 – 4.176: Examples of Burial Pottery, Cemetery R 37, Harappa

Bio-archaeological findings from R 37

The excavations have brought to light 90 individuals for which discrete age determination and sex is possible,[285] even though the total number of burials excavated is around 179. Kennedy and Lovell first carried out the bio-archaeological investigations of the skeletons[286] immediately after the 1988 field season and later Hempill *et al*[287] carried out a detailed study. Lukacs[288] carried out the dental anthropological studies while Hempill[289] did the discrete traits analysis in 1989. Hempill *et al* studied 196 skeletons including 106 burials reported by Dutta from the same area and labelled as R37A.[290]

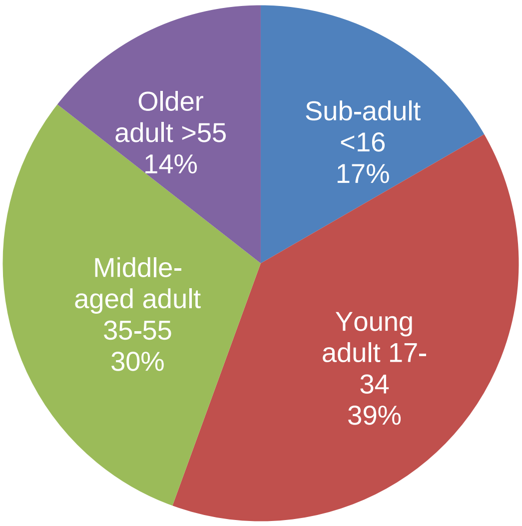


Fig. 4.177: Chart showing the age distribution of R37C burials, Harappa

The remaining 90 skeletons for which definite age and sex determinants could be observed were also studied from the UCB / HARP excavations and labelled as R37C. Thus, out of the total 196 individuals, 57 belong to males (29%) and 84 are of females (42%) while sex could not be determined for 55 individuals (28%).The odontometric studies revealed that the tooth size of South Asians reduced over a period since antiquity at the rate of 1.7% per 1000 years.[291] The dental pathological studies reveal that 70% of the Harappans represented in the burials were affected by linear enamel hypoplasia which is *"….a disruption of enamel formation during tooth development caused by pathological affliction or dietary deficiencies."*[292] The other common afflictions found in the individuals are *"…abscesses (18%), pulp exposure (17%)"*, and *"antemortem tooth loss (32%), calculus (43%), caries (44%), alveolar resorption (53%) occur with intermediate frequency."*[293] It has been estimated that the overall caries occurrence at Harappa is only 6.8%, and *"…noticeable differences exist in caries rate between the upper (9.1%) and the lower (4.8%) jaw, and between the anterior teeth (incisor and canine: 3.8%) and posterior teeth (premolar and molar: 8.4%)."*[294] A comparative analysis of various population groups in South Asia for dental health indicated a decline from Neolithic to Chalcolithic to Harappan which is also interpreted due to *"….reliance upon cultivated foodstuffs and gradual but significant improvements in food processing technology."*[295]

The palaeopathological studies indicate that the Harappans were less afflicted from nutritional inadequacies like rickets, scurvy or anemia and low instances of traumatic injuries, chronic infectious diseases, and malignant neoplastic diseases.[296] The instance of arthritis is among the most common health abnormalities, the areas affected being spine, joints of the knee, hands and feet.[297] The instances of severe arthritis in the neck and fusion of adjacent elements is interpreted as *"….unusual stress on the neck vertebrae, …..carrying heavy loads on the head."*[298]

4.3.2 Mohenjo-daro

Mohenjo-daro (27^{0}19' 30" N; 68^0 8' 11" E), district Larkana, Pakistan is one among the largest five Harappan settlements along with Harappa, Ganweriwala, Rakhigarhi and Dholavira and one of the earliest sites to be excavated by

Archaeological Survey of India the remains from which ultimately led to the identification of the earliest urbanisation of south Asia. Mohenjo-daro was discovered by D.R. Bhandarkar in 1911-12, during his explorations in the Sindh and reports that the site of Mohenjo-daro spreads over a vast area covering nearly three-fourths of a mile. Mohenjo-daro is located at a distance of 40 km south-southwest of Larkana, the district headquarters, on the right bank of the River Indus adjacent to a present big meander.

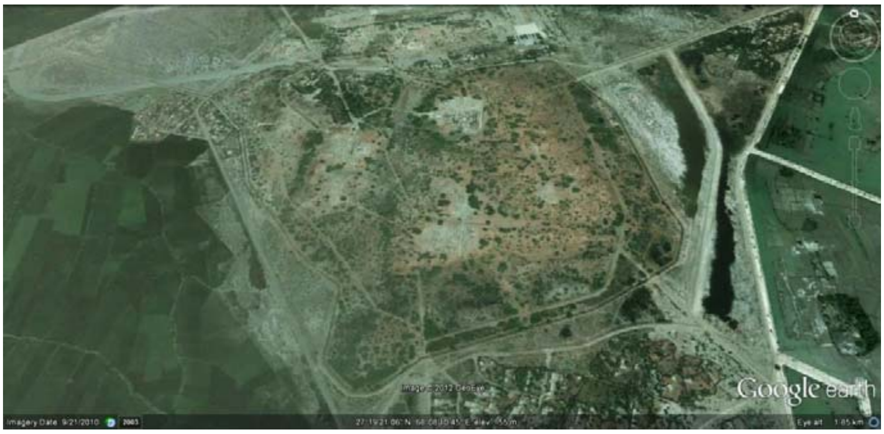


Fig. 4.178: Google Earth image of ancient site of Mohenjo-daro

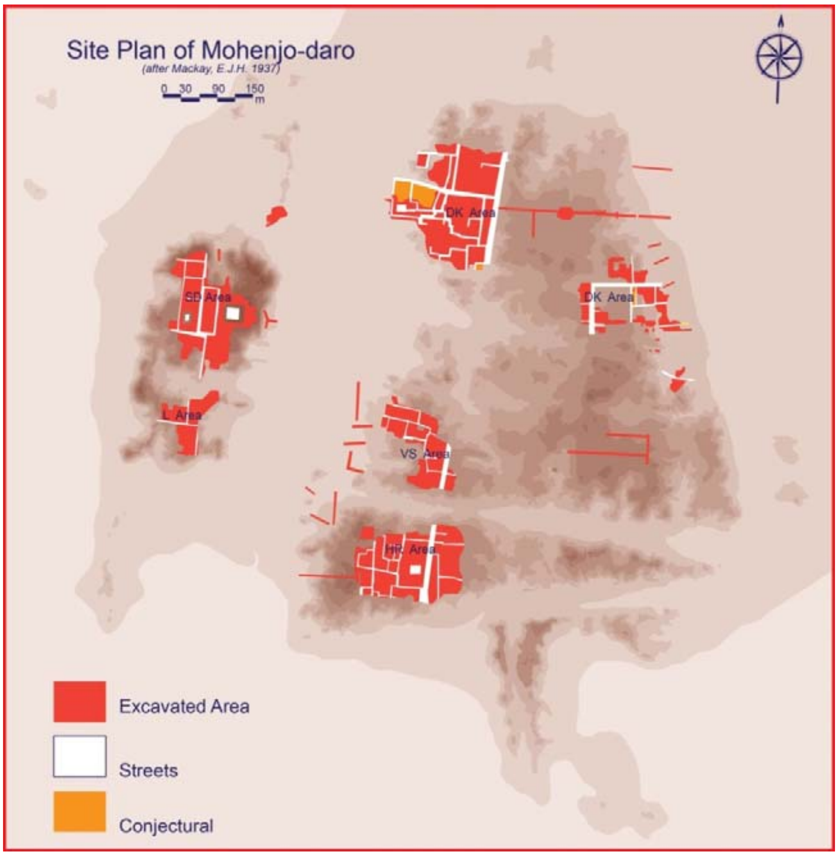


Fig. 4.179: Site Plan of Mohenjo-daro showing the excavated areas

Mohenjo-daro is locally known as "Mound of the Dead" and "The Island", the latter being *"....a long, narrow strip of land between the main river bed and the Western Nara loop..."*.[299] Marshall states that the mounds have remains of series of cities, and the most elevated point is near the northwestern corner, where it rises to a height of 70 feet, while the average height of the mound is 20 – 30 feet.[300] Marshall also estimates that the size of the settlement is around 240 acres (97 ha). He further estimates that the extent of the site would be much larger as the floods, erosion and deposition of alluvium by River Indus have diminished much of the lower and outlying parts of the city.[301] The excavation at the site commenced in 1922 by R.D. Banerji and the initial objective was to explore the Buddhist remains. The chance discovery of several seals from this area is comparable with similar finds from Harappa, which helped in understanding the contemporaneity of these two sites. The excavation at Mohenjo-daro continued from 1922 – 1931 under various officers of the ASI like R.D. Banerji, M.S. Vats, K.N. Dikshit, Daya Ram Sahni, E.J.H. Mackay and others.



Fig. 4.180: Stupa Mound, Mohenjo-daro



Fig. 4.181: Aerial view of Great Bath

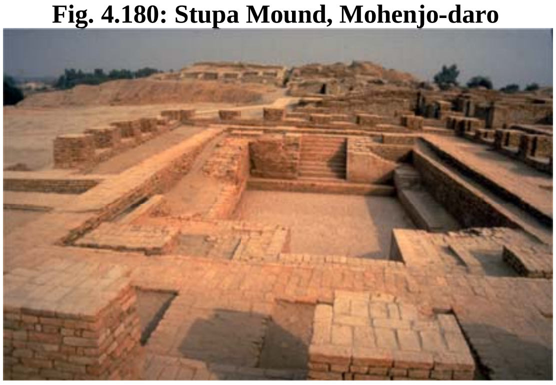


Fig. 4.182: Great Bath, Mohenjo-daro

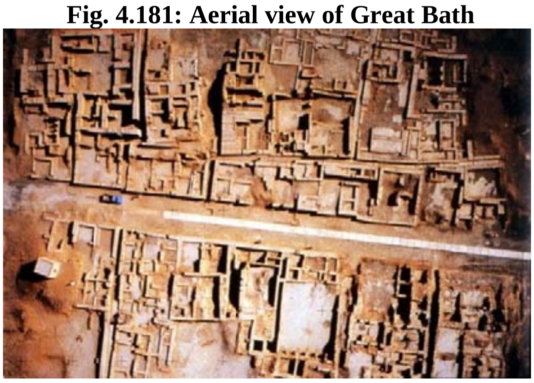


Fig. 4.183: Part of the city with streets, lanes and bye-lanes, Mohenjo-daro

The main excavated areas are designated as SD and L Areas in "Stupa Mound", DK, VS and HR Areas in the lower mound. The SD Area brought to light the famous "Great Bath", and other palatial buildings while from the L Area a "Pillared Hall" was brought to light. The other remarkable features of the city include the criss-crossing of east – west and north – south broad roads, supplemented by lanes and bye-lanes, large house complexes, excellent drainage facilities, provision of wells inside houses, etc. The excavations brought to light seven strata and they were placed in three different periods, viz., Early, Intermediate and Late Periods based on the pottery and classes or types of antiquities.[302]

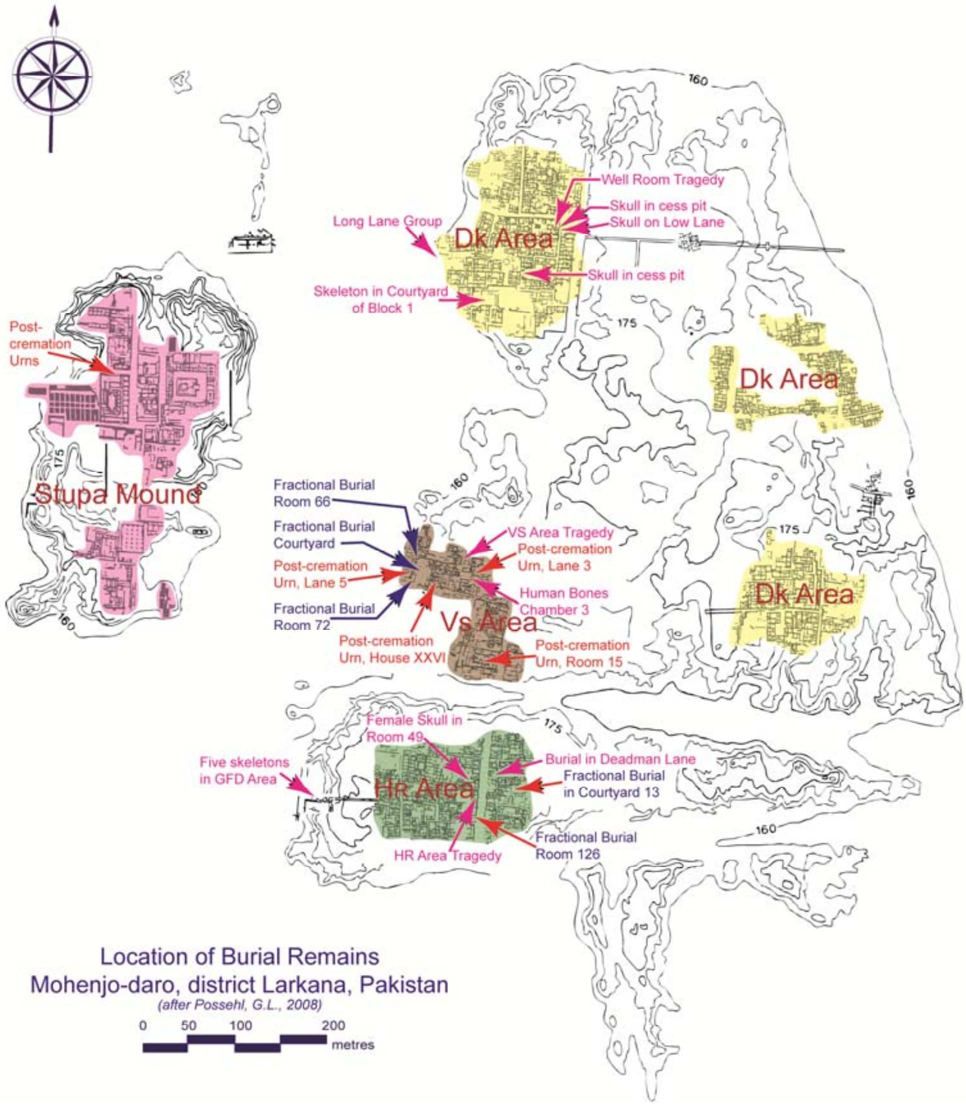


Fig. 4.184: Location of burial remains, Mohenjo-daro

Each of the three periods has three sub-phases designated on various grounds, including levels of streets, doorsills, masonry of the wells, floor levels of houses, etc. The dating of the various periods at Mohenjo-daro has been done based on the occurrence of steatite seals from Mesopotamian sites as well as some finds of chlorite vessels from Mohenjo-daro and a conservative time period of late fourth / third millennium BCE has been suggested for the occupation of this site by Mackay.[303]

Evidences for Burials from Mohenjo-daro from excavations under John Marshall

Complete Burials

The excavation between the years 1921 and 1927 brought to light the remains of 21 skeletons that are termed as complete burials even though questions regarding their internment as per tradition occurred or not have been raised.[304] The complete burials comprise of the following:

Particulars	Location and Burial goods
14 skeletons; 13 Adult males and females and a child	Room 74 of House V, HR Area, Section B Presence of a variety of personal ornaments *in situ,* consisting of *"....shell and copper bracelets, copper finger rings, copper and faience beads and a seal"*.[305]

The group of skeletons numbering to 14 consisting of 13 adult males and females and a child came to light in Room 74 of House V, Section B of HR Area, and the minimum depth being 30.48 cm below surface. Of the group of skeletons, one was near to the surface, i.e. 30.48 cm while the remaining 13 were slightly below it. The bones were generally found to be in bad state of preservation due to the salt action from the surrounding deposits. The evidence indicates no regular ritual or ceremonies generally observed in a normal burial and all lay haphazardly in different orientations. Of the above skeletons, the one closer to the surface was preserved only above the pelvis and the body lying to its left in east – west orientation, with the arms bent, *"…the left hand to the face, the right a little advanced."*[306] The associated burial goods consist of a shell bangle in the left wrist and a seal, the latter found at the same level and 30.48 cm southeast of the skeleton. The details[307] of the remaining skeletons are given as under.

Skeleton	Position	Particulars
4	Found near the northern wall of Room 74 at a depth of 0.61 m	The skeleton was found lying to its right, head on the west and face to south; right arm

Skeleton	Position	Particulars
	below surface	bent and hand under head; associated finds include 4 copper rings, 75 faience beads (identified as part of a girdle), 2 copper beads, 2 copper rings, fragment of a copper ornament.
5	Much damaged	Body facing downwards in NW – SW, right leg of Skeleton 9 above this skeleton; associated finds are 2 copper rings.
6		Skeleton lying on left side in natural position; head on the southwest, one hand (right) on the abdomen other lying by the side while the legs are flexed.
7	Lying partly over Skeletons 11 and 8	Lying on its back, head towards south, face towards west, legs bent and outspread, feet together; associated finds are 2 copper finger rings and 2 copper bracelets.
8	Lying close to Skeleton 7	Lying in prone position, head towards north, legs straight and slightly apart; right rand below forehead while left arm bent near head; feet turned in an unnatural position.
9	Right leg over body of Skeleton 5	Skull much damaged, head towards north, right leg in straight position and left bent at the knee; arms outstretched, right hand bent at elbow and touching the pelvic bone of Skeleton 8 while the head lies close to Skeleton 7.
10	Located on the north side of the room	Head placed towards southwest, legs straight and arms flexed; complete shell bangle on left upper arm.
11	Placed in line with Skeleton 8	Laid on its back, head towards the south; arms at right angles to the body, right leg stretched and left one bent.
12	Much damaged	Lying face downward; lying in line with Skeleton 6 and to the south of it.
13	Skull in poor condition	Head towards the west and body on its left side; legs flexed and left arm touching the head of Skeleton 14; face turned upwards.
14	Only a few remains of skeleton, lying to the north and touching Skeleton 13	Facing turned upwards, right leg extended towards the north; associated finds include 3 copper bangles.

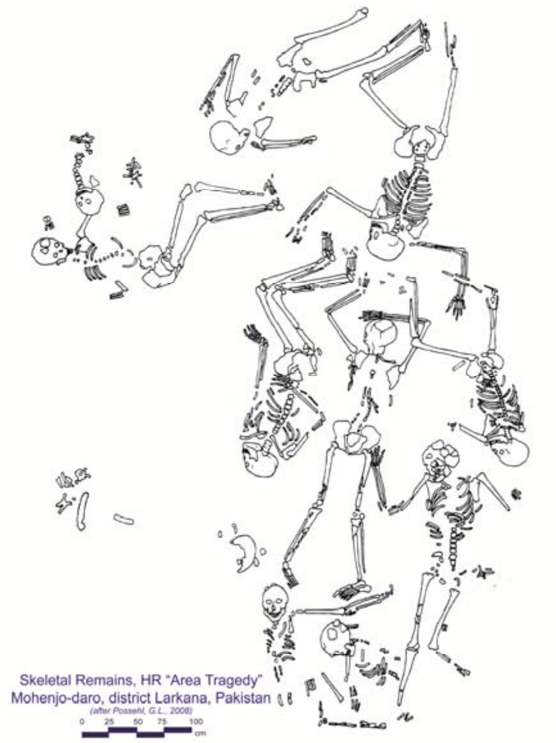


Fig. 4.185: Skeletal Remains, HR "Area Tragedy", Mohenjo-daro

Skeleton	Position	Particulars
15	Badly preserved crushed skull	Found at the extreme southern end of the room; partly lying under Skeleton 16.
16	Partly over the southern wall of Room 74 along with Skeletons 2, 5 and 9	Lying on its back, head toward the north, face slightly towards east; legs slightly surrounding Skeleton 5.



Fig. 4.186: Skeletons *in situ*, Room 74, House V, HR Area

The relative position of Skeletons 16, 2, 5 and 9 above the wall portion of Room 74 has been interpreted by Hargreaves as an event posterior to the decay of the building and belonging to the period between Intermediate I and Late III Periods, and also admitting the possibility of the event posterior to Late Period I.[308] The position and arrangement of various skeletons in Room 74 has been identified with some "tragedy" and simultaneous death instead of a deliberate burial.[309] The associated findings of copper, faience, shell, etc., from the skeletons have been identified as typical artefacts of the Indus civilization and the individuals as those occupied the ruins after the abandonment of the city.[310]



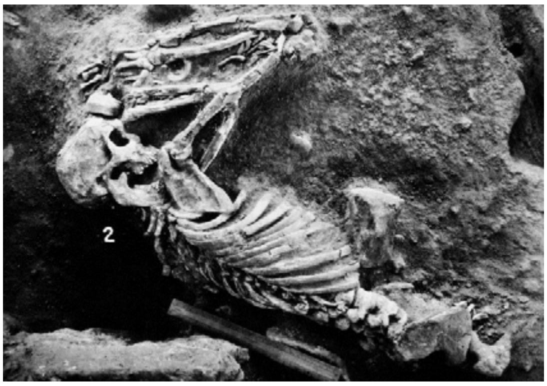


Fig. 4.187: View of skeletions (left); Fig. 4.188:Closer view of a skeleton (right) both in Room 74, House V, HR Area, Mohenjo-daro

Further, Marshall also interprets on the varied attitudes of the skeletons due to simultaneous death, and as one of the skeletons was discovered in a position partly covering the southern wall of the chamber, the death might have occurred after the structure fell into disuse.[311]

Group of 6 skeletons	Lane 4, between Houses XVIII and XXXIII, VS Area Shell ball and three pieces of shell-inlay; vertebrae of an animal found over tow on the skeletons.
1 skeleton	Deadman Lane, HR Area, Section A

The presence of the skeletons mostly from the street deposits and ruined chamber, devoid of any traditional mode of disposal of dead along with interment of burial goods and furniture, as gleaned from other contemporary sites like Harappa, led the excavators to interpret the cause of death to *"...plague, famine or sudden death"*, and as the death occurred posterior to abandonment of the settlement, the individuals were belonging to *"....some wandering jungle tribe"* [312] even though Marshall

completely disagrees with the theory of the excavators and summarises that "…..*there is no reason whatever for doubting that these burials date from the declining years of Mohenjo-daro's prosperity…"*[313]

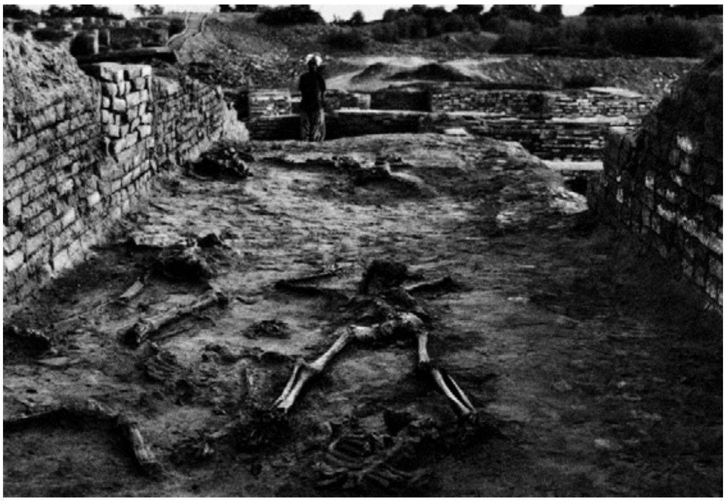


Fig. 4.189: View of skeletons lying in a street between Houses XVIII and XXXIII, VS Area, Mohenjo-daro

Fractional Burials

Fractional burials have been described as those in which *"…..a fraction of bones was collection and buried after the body had been exposed to the beasts and birds"*.[314]The details of the fractional burials are given below:

Particulars	Location and Burial goods
Skull in an earthenware	Courtyard 13 of House III, Section A, HR Area Balls, beads, chert flakes, a shell spoon, bits of ivory, miniature vessels



Fig. 4.190: Fractional Burial in House III, Section A, HR Area, Mohenjo-daro

Particulars	Location and Burial goods
Human bones	Pit outside Room 72, South end of Lane 5, VS Area. Large and varied collection of pottery, terracotta animal figurines, beads and pieces of chert.
No skeletal remains	Room 66, Block 4, House XXVII, VS Area Large group of pottery, some have charred bones. One of the potteries was the *"stem of an offerings dish"* that is equated with similar finds from Kish of ca. 3000 BCE and from Harappa.
No skeletal remains	Courtyard of House XXVII, VS Area, in front of Rooms 69 and 71. Variety of vessels including a broken *"offerings dish"*.
No skeletal remains	Room 126, House X, HR Area, Section B. Pottery, terracotta figurines, balls, fragments of alabaster, chert flakes.

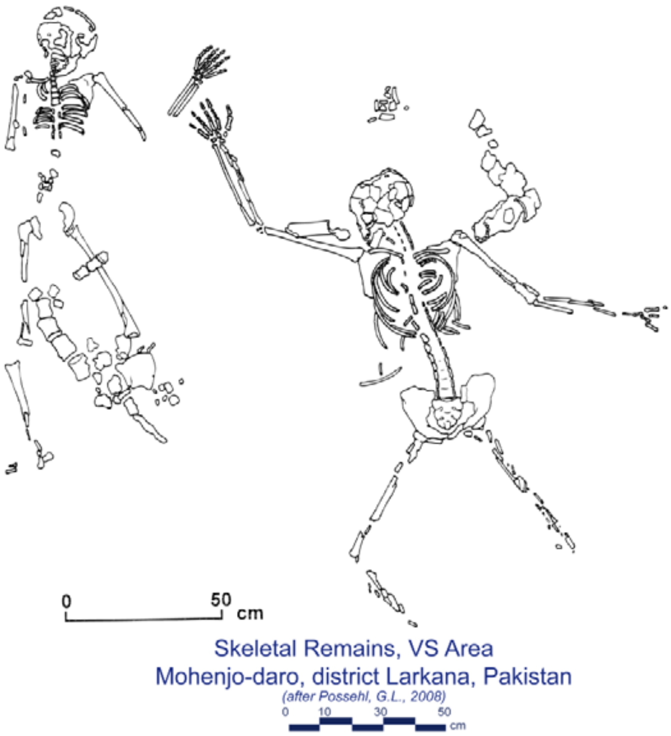


Fig. 4.191: Skeletal Remains, VS Area, Mohenjo-daro

Post-Cremation Burials

The type of burials classified as 'post-cremation burials' generally consist of a *'wide-mouthed urn'* containing several smaller vases, bones of small animals, birds, fish

and personal belongings such as beads, bangles, terracotta figurines, chert blades in association with ash and charcoal in a few instances.

These types of burials have been reported from Mohenjo-daro from buildings belonging to all periods, and generally found beneath a floor or street.[315] The smaller vases placed in the bigger urns are of the types consisting of, *".....bowls, saucers, pointed goblets, beakers and sometimes miniature vases.."*. [316] The general characteristics, location of the post-cremation burials is given below:



Fig. 4.192: Two larger urns with smaller vessels, North Entrance to Great Bath, SD Area, Mohenjo-daro

Particulars	Location and Burial goods
2 Urn burial	Narrow entrance to the Great Bath, SD Area, posterior to filling of lower storey and raising of floor level
Urn burial	Lane 3, South of House XIX, VS Area
Urn burial	Room 15, House V, VS Area
	Urn containing 6 goblets of pointed bases, a shell palette, a terracotta ball identified as a weight, broken animal figurine. Three of the goblets contain respectively a miniature case, a seal and vertebrae of a fish inside.[317]
Urn burial	Underneath a late floor, Corridor of House XXVI, VS Area.
	Present of two oval shaped vases, two goblets of pointed base variety, a terracotta bangle, an animal figurine, and few bones identified that of a human.[318]



Fig. 4.193: Urn containing smaller vessels inside, Lane 3, South of House XIX, VS Area, Mohenjo-daro

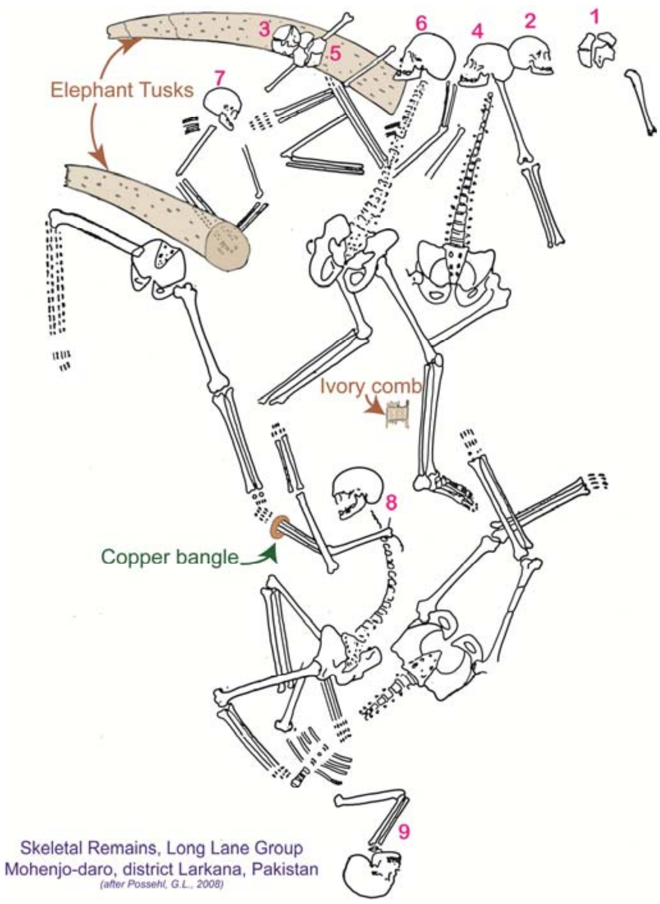


Fig. 4.194: Skeletal Remains, Long Lane Group, Mohenjo-daro

Particulars	Location and Burial goods
Two urns	Lane 5, Block 4, VS Area One Urn contains pottery, broken offerings dish, miniature beaker and terracotta bangles, terracotta dog figurine, fragment of a clay tablet, copper nail, pieces of charcoal and a few bones.[319] The second Urn contain 11 small vases with lids, terracotta human figurines (both men and women), and terracotta figurines of rams, dogs, a goat, wheels, balls and chert flakes, pieces of mother-of-pearl, sealing of yellow faience, some charcoal and bones.[320]
Miscellaneous burial	Small subterranean Chamber 3, Building XXI, Block 4, VS Area Collection of charred human bones, pieces of a skull, finger joints along with goblets, dishes, other vessels, baked clay tablets, broken shell bangles, a terracotta figurine, chert scraper mixed in ashes and charcoal.[321]

4.3.2.1 Evidences for Burials from Mohenjo-daro from excavations of E.J.H. Mackay

The excavations carried out for four field seasons from 1927 – 1931 under the direction of Mackay also brought to light the remains of several skeletal remains.[322] A brief account of the findings is given below:

Particulars	Location and Burial goods
Group of 9 skeletons[323]	Long lane between Block 10A and 11, DK Area Group of 9 skeletal remains found in *"contorted attitudes and crowded together"*. The dating of these burials is unknown; the burial goods consist of an ivory comb near skull of Skeleton 8 and a copper bangle on right wrist. Another important associated find from this group is the presence of two large elephant tusks, one of which measured marginally over 2 m in length and 0.15 m in diameter at its widest portion. The associated individuals along with this tusk are skulls of Skeletons 3 and 5, and part bones of Skeleton 6. The other finds in relations to this group of skeletons and not associated with them stratigraphically are an alabaster stand below Skeleton 6, a barrel shaped agate bead near pelvis of Skeleton 4, a large faience bead with a fluted edge north of Skeletons 4 and 6.

Fig. 4.195: Skeleton 6 (left); Fig. 4.196: Skeleton 7 (right) both in Block 10A, DK Area

The exact cause of the death of the individuals could not be determined and the excavator surmises on the basis of circumstances that the individuals were a group of a family of ivory-workers were raided and killed near the city exit during the Phase I of Late Period.[324]

Particulars	**Location and Burial goods**
2 Skeletons in Well-Room, 1 in Low Lane and 1 in brick-lined pit.[325]	Well Room, Room 42, Block 8A, DK Area. Well Room is a low-lying room connected to the Low Lane through a staircase as the level of the latter was higher than the latter due to growth of city. Two skeletons were found on the staircase, third one on the low lane outside and fourth one in a brick lined pit just to the north of entrance of well room.

The position of the skeletons along with the preservation condition of the skeletons has been interpreted by the excavator that the individuals were murdered by raiders during the late phase of occupation at Mohenjo-daro.[326]

Particulars	**Location and Burial goods**
Fragmentary skeleton	Room XXIX, House I, Block VII, DK Area A fragmentary skull could only be recovered nearly 2.43 m below the datum.[327]
Fragmentary skeleton	Block I, northwestern corner of Western Court, DK Area. Only a few broken pieces could be recovered due to bad state of preservation. The fragments consist of the skull, attributed to that of a female adult.[328]

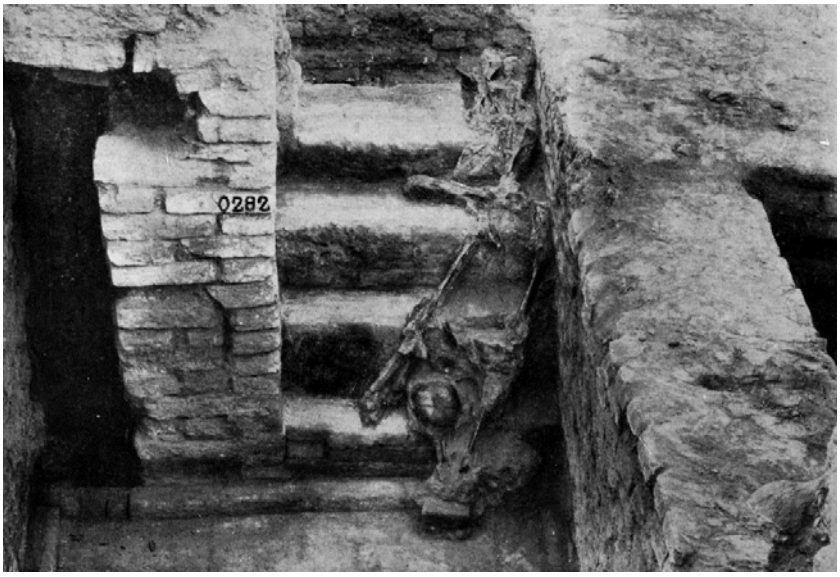


Fig. 4.197: Two skeletons on the stairway leading to a low lane from the Well Room, Room 42, Block 8A, DK Area

The nature of interment and the arrangement of various skeletons in a haphazard manner have raised doubts on the exact identification of these interments as actual burials. Scholars like Wheeler,[329] Dales,[330] Kennedy,[331] and Possehl[332] have put forth different interpretations on the burial remains from Mohenjo-daro. The dramatic circumstances in which the skeletons are found in various parts of the city from a period posterior to the abandonment of settlement have led scholars like Wheeler and Basham[333] to attribute that the cities fell to the invading Aryans. Basham attributes the falling of Indus cities as:

> *"The Indus cities fell to barbarians who triumphed not only through greater military prowess, but also because they were equipped with better weapons, and had learnt to make full use of the swift and terror-striking beast of the steppes".*

Wheeler accuses Indra, the principal god eulogised in Rigveda as the main 'accused' in the destruction of Indus cities and the massacre at Mohenjo-daro.[334] Dales refutes the theory put forth by Wheeler based on the chronology and lack of material evidence to support the massacre by the invading Aryans.[335] He further argues that all the skeletal evidences were unearthed from the lower town and not from the citadel, which should have presented more clear evidences of conflict in case of an invasion. Dales further argues that all the skeletal remains belonging to a single period is questionable and also raising doubts on the recording methodology of the excavation.

The conflicting theories put forth by Marshall and Hargreaves on the HR "tragedy" of fourteen skeletons are also cited in support of the requirement of proper identification of cause of their death and timeframe. The skeletons of Room 74, House V and those of House III of HR Area clearly indicate that they belong to a period posterior to the abandonment of the structures, or a considerable time had elapsed since the abandonment and deposition of the skeletons as recorded by Hargreaves. Similar is the case with the skeletons from between two houses and from the Deadman Lane in VS Area as they clearly indicate deposition in the debris or posterior to the occupation of a house or street. The only instance for evidence of a clear tragedy is attributed to the Well Room skeletons by Dales, even though he admits that without the circumstantial evidence attributable to the tragedy, the exact cause of death may not be fixed.[336]

Kennedy, while supporting the views of Dales based on archaeological evidences, proceeds to put forth anthropological evidences that go against the massacre theory. Kennedy observes that *"indisputable evidence of injuries"* causing the death of individuals *"is not apparent in the majority of skeletons assigned the status of massacre victims."* [337] He further observes that *"….the establishment of direct evidence of traumatic stress has priority over non-biological theories of a Mohenjo-daro massacre."*[338] Kennedy, on examination of "two traumatic lesions on cranial bones" from Mohenjo-daro skeletons observes that *".....some resorption of bone had taken place along the margins of the wound, thus indicating that the unfortunate recipients of thumps on the head had survived this outrage by several months, their death being attributable perhaps to other causes."*[339] It is also pointed out by Kennedy that phenotypically the "massacre victims" are not distinct from the *"other denizens of Mohenjo-daro"*. A biological continuum of the ancient population from Mohenjo-daro and Harappa as gleaned from the skeletal remains is also observed in the modern population of Punjab and Sindh.[340]

It is evident from the above discussion that the skeletal remains at Mohenjo-daro have been found in a stratigraphical position posterior or later to the structural remains or streets. This has been clearly interpreted by the excavator themselves that they belong to a period after the settlement was abandoned. Thus all these skeletal remains without any clear evidence of intentional interments are difficult to be treated as

burials. This is also further substantiated by the absence of associated burial pottery and the typical arrangement generally found with burials. In this regard, the fractional and post-cremation urns are of special interest. These burials may be of symbolic in nature even though their funerary nature is questioned by Possehl.[341] Most of the fractional burials and post-cremation urns are again from deposits late in period of occupation of the settlement. Out of the post-cremation urns described by Marshall, two urns near the northern entrance of Great Bath are identified as possible "foundation deposit" or "commemorative offering" for those who used the Great Bath by Possehl.[342] Thus, the evidences obtained from the excavations at Mohenjo-daro are dealt with caution and not taken as intentional burials for the purpose of understanding the burial practices.

4.3.3 Dholavira

Dholavira (*23^0 53' 10" N; 70^0 13' E*) is located in the northwestern area of an island named Khadir in the Great Rann of Kachchh in Bachau Taluka, district Kachchh, Gujarat.[343] The site was discovered by J.P. Joshi in 1967-68 and ranks among the five largest Harappan settlements in the Indian sub-continent.[344] Two seasonal rivers, Manhar and Mansar flank the ancient settlement on the south and north respectively. It has been estimated that the fortified settlement along with the cemetery to its southwest cover an area of about 100 hectares.[345] The excavation of Dholavira was carried out for thirteen field seasons by R.S. Bisht starting from 1989-90 to 2004-05, with breaks of three years in between.[346] The site revealed a continuous occupation of 1500 years starting around circa 3000 BC up to 1500 BC marked by seven cultural stages.[347] The excavation has brought to light, *"……a model Harappan city……remarkable for its exquisite planning, monumental structures, aesthetic architecture and amazing water management system……inscription made up of ten large-sized signs of the Indus script……variety of funerary structures…"*.[348] The excavator has described the various components of the settlement as *"…..bipartite citadel, a middle town, a lower town, two stadia – one wide and extensive, the other much smaller and compact – an annexe, a series of reservoirs – all of them set within enormous fortification running on all four sides"*.[349] The naming of the tripartite divisions of the settlement as 'citadel', 'middle town' and 'lower town' is equated with the analogous description of categories of zones, regions, stations, buildings in Rigveda as *'parama', 'madhyama'* and *'avama'*.[350]

The habitational deposit accounts to around 15 m in the castle, out of which 11.2 m is of regular habitation and 2 m belongs to one time raising in addition to elevated portions of the defences. The seven stages identified by the excavator records vivid details of the origin, rise and fall of the Harappan settlement at Dholavira. ***Stage I*** represents the earliest occupation at the site and a portion of its fortification wall with basal width of 11.2 m and extant height of 4 m was exposed near the southeastern bastion of the citadel.[351] The **Stage I** is characterised by a *"formative stage in which the classical Harappan items had their beginnings: monumental and massive fortification with a broad accompanying street, use of moulded bricks yielding the well-known ratio of 4:2:1 in respect of length, width and thickness, presence of perforated jars, dish-on-stand, basins, the 'reserve slipped' ware, triangular terracotta cakes and chert blades, occurring from the beginning"*.[352]



Fig. 4.198: Google Earth image showing the location of Dholavira in Khadir island

Stage II at Dholavira is characterised by the addition of a 2.8 m thick brick masonry wall on the inner side of the fortification and the surface plastered with white and pink clays for as many as thirteen times. This phase also saw the addition of a new residential complex to the north of the fortified settlement while there was an increase in pottery and other artefacts. ***Stage III*** at Dholavira saw significant additions and alterations to the overall plan of the settlement by way of addition of a 4.5 m thick brick masonry wall on the inner side of fortification, consolidation of plans of both castle and bailey, clearance of residential area to the north of the settlement for creation of a multi-purpose ground, addition of another walled settlement named as middle town to the

north of castle, digging up of reservoirs to the south, east and north of the walled settlement, appearance of square seals devoid of Indus signs and appearance of classical Harappan pottery types with painted motifs.[353] Another settlement appeared to the east of middle town after a large-scale renovation and repairs were prompted due to the occurrence of a catastrophic earthquake, thus the settlement at Dholavira attained the full plan during the latter part of Stage III. Another significant aspect of the Stages I, II and III is the extensive usage of colourful clays in white and pink shades on the walls, defences, roads, streets, ceremonial grounds, floors, etc., which, however came to an abrupt end towards the close of Stage III.

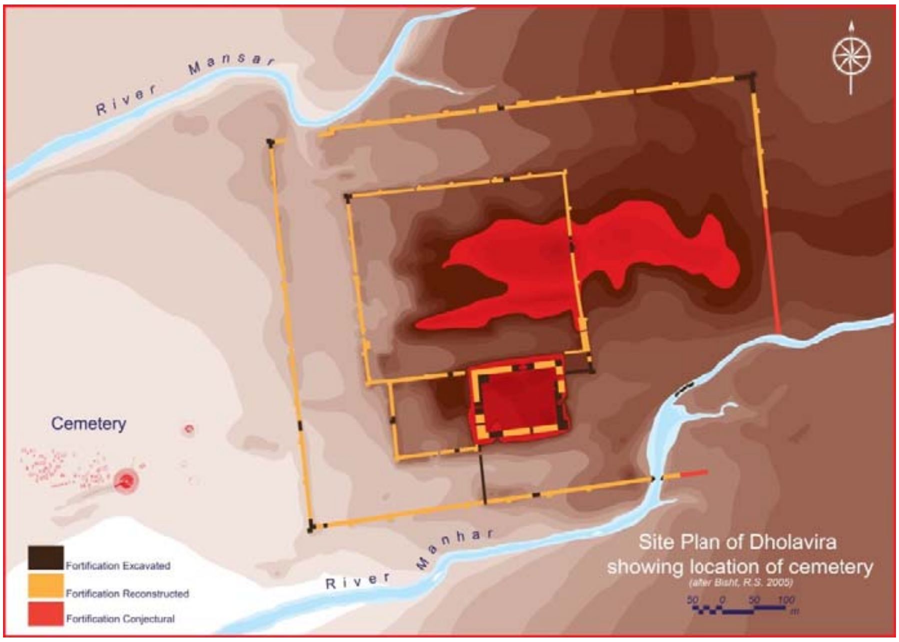


Fig. 4.199: Plan of the Harappan settlement at Dholavira and location of cemetery

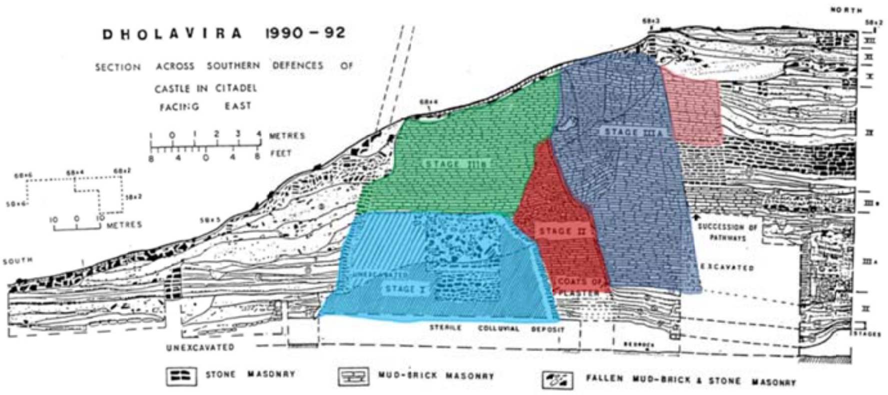


Fig. 4.200: Section showing the seven stages of habitation at Dholavira(*after Bisht, R.S. 2005*) (*the colour shadings indicate addition of fortifications in various stages*)

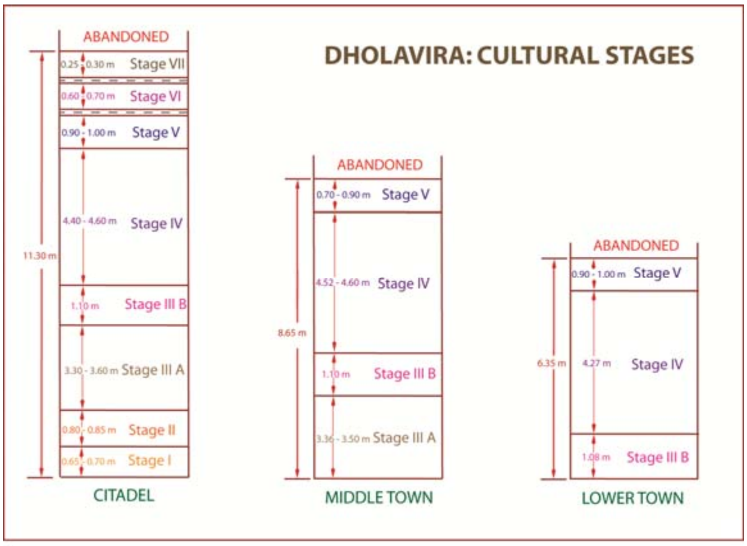


Fig. 4.201: Chart showing the various cultural stages, Dholavira

Stage IV at Dholavira is represented by the classical Harappan culture during which period the monumental features created during the preceding stage was maintained like the gateways, fortification, drainage system while the free-standing pillars and polished pillar elements could have been created during this stage or preceding one. The other characteristic features comprises that of ten-signed inscription found on the western chamber of north gate of citadel, *"……all classical Harappan materials such as pottery, seals, weights, beads, items of gold, silver, coppery, ivory, shell, faience, steatite, clay and stones….."*[354] ***Stage V*** at Dholavira witnesses general decline in the overall maintenance of the city, which is clearly felt in the citadel, while other Harappan elements like pottery, seals, weights, etc., continue to present. This stage is followed by a temporary desertion in the occupation at the site before the Stage VI occupants enters into prominence.

Stage VI at Dholavira was a transformed city, the area of occupation shrunk considerably to be occupied only to the southern margin of middle town and citadel. This period also saw the introduction of new ceramic traditions from Sindh, Rajasthan and other parts of Gujarat. The planning, construction modes underwent a change and the buildings were no longer constructed with bricks and largely rickety and jerry built. New ceramic types like black-and-red and white painted grey ware in association with

coarse ware with incised and applique designs. In association with the new ceramic traditions is the continuation of Harappan systems like seals and weights, albeit with a transformed conditions. For example, the seals are rectangular in shape with only the signs and no motif, while chert cubical weights continued along with terracotta duplicates. The excavator surmises the state of Stage VI as, "*.... impoverishment and rapidly crumbling urbanism"* after which the site was abandoned.[355] The ***Stage VII*** occupants came after a considerable gap and the material culture was totally different from the classical Harappan types and forms. Their buildings consisted of circular structures and all the urban features were missing.

The Cemetery at Dholavira

The funerary remains at Dholavira has been traced on the east, west and north of the fortified settlement, however, the ones belonging to the Harappan period is concentrated to the west consist of various types of funerary architecture, spreading over an area of roughly about 50 ha.[356] Evidences suggest that a water body lied to the south of the cemetery complex, which has dried up now and extensively used for cultivation by the local farmers for the fertile soil. The water body might have been held in high esteem by the Harappans is proved by the presence of five to six huge hemispherical "tumuli" on its banks containing sepulchral remains.[357] Nearly 15 sepulchral remains were investigated by the excavation, which brought to light an extremely important style of disposal of dead, construction pattern, and architecture, however very similar to other Harappan burials in terms of orientation, i.e. north – south. The burials were predominantly memorial in nature as no skeletal remains were unearthed except two inhumation and few fractional burials. Otherwise, the burials were found interred with varying qualities and quantities of pottery, few beads and gold artefacts as grave goods. One of the burial, named as Tumulus I is exceptionally rich in burial goods in the form of a complete steatite circular beaded necklace, gold bangle, and pottery.

The burials have been placed in the Stages III, IV and V on the basis of typology and other aspects. Only one burial has been dated to Stage VI located on the southeastern end of the water body mentioned above. Another burial of Stage VII was

exposed on the surface in the citadel mound. In addition to above, two graves were also unearthed within the fortification limits in the lower town.

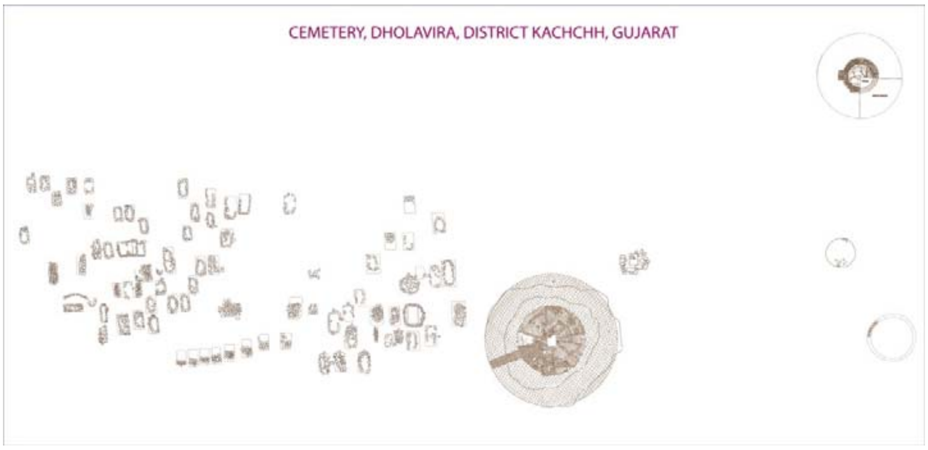


Fig. 4.202: Details of the main cemetery area at Dholavira, district Kachchh, Gujarat

The following types[358] have been identified at Dholavira, based on the funerary architecture:

1. Rectangular Memorial
   - (i) Built memorial
   - (ii) Cist, or cist in cairn
   - (iii) Rock-cut
2. Cairn: round, oval, long oval, or egg-shaped
3. Composite graves in a circle, a semicircle, or a rectangle
4. Fractional burial
5. Inhumation
6. Hemispherical monument or tumulus

Rectangular Memorial

Built memorial of Rectangular type

The first type of the Rectangular Memorial type is the ***"Built Memorial"*** which is the most dominant variety at Dholavira. It is characterised by N – S, E – S and NE – SW orientation, built over rectangular pits cut into the ground, symbolic burials with a few pots, beads and pieces of gold as burial goods. The burial goods were often interred at the northern portion of the grave pits, either on the east or western side. The size of

these burials range from smaller to bigger ones and this type of memorial burials are found in large numbers to the west of Tumulus – I burial and north of River Manhar.

Cists, or Cist in Cairn

This type of burials can be distinguished from the "Built Memorials" in terms of good quality of limestone slabs used for lining of the walls and they were often capped with a huge limestone slab. They are also oriented in N – S direction and found in large numbers to the west of Tumulus – I burial and north of River Manhar. Two burials belonging to this variety was excavated by ASI. The "Western Cist" was found in a fair state of preservation measuring about 2.9 – 3.08 X 1.6 – 1.96 X 1.12 m (l X b X d) and preserves a "mud coffin" resembling an anthropomorph.[359] The coffin measures 1.84 m in length, 0.84 m width and 12 cm thick. The coffin is found to be placed over a set of pots and stone chips as "props" in addition to complete set of pots near the eastern side of the grave. At a higher level is further placed a water vessel and dish-on-stand on the western side, which corresponds to a curved opening in one of the upright western stone slab that could have been made intentionally to make offerings at a later period. At the northern end of the burial is a low rectangular structure made of rubble stones and corresponding to the porthole, the presence of which is interpreted by the excavator as a place of priest who might have supervised the rituals of making offerings to the departed.[360]





Fig. 4.203: Cists, or Cist in Cairn, Cist which contain a "mud coffin" (left); 4.204: Cist with broken capstone (right)

Another cist lying to the east of above was also excavated which exhibited similar construction details as of above. This cist measures 3.18 X 1.65 X 1.6 m (l X b X d) and exhibits intentional desecration of burial in the form of breakage of capstone, which slipped into the burial chamber. The grave goods consist of several plates and potsherds of red ware, which have been identified by the excavator as not lying in their original position due to disturbances mentioned above.

Rock-cut

These types of burials are excavated like shallow and deep pits into the natural bedrock and described as a variant of rectangular type of burials. Four examples of this type have been excavated at Dholavira of which two pertains to the hemispherical tumulus. The rock-cut burial pits, have thus different morphological features above the ground to represent them. However, due to the clearance activities of the local villagers for various purposes, the surface indications have been removed in some cases and thus a clear determination of the typology of burials may be difficult in some cases.

Out of the two burials having rock-cut burial pits, one is located between two hemispherical tumuli and towards the east of rectangular memorials described above. This burial was found in a stage of disturbance with all the surface features ripped of due to unknown reasons. This burial measures 4.55 X 2.3 X 2.3 m (l x b X d) and yielded limestone slabs in a haphazard manner and good quality yellow earth, the latter often used for making the mud bricks by the inhabitants.

The second burial was discovered after an anomaly was found in the GPR survey carried out by ASI, well within the limits of the water body mentioned above.[361] The burial was found at a depth of 1.8 m from the present surface and measures 2.85 X 1.42 X 0.9 m (l x b X d). The burial goods are quite interesting on the fact that three sets of offerings at three different levels, viz., 20 cm, 60 cm and 90 cm respectively from the top. This clearly indicates that the three sets of offerings or burial goods were interred after performing certain rituals during the entire consecration of the burial. The burial goods consist of typical Harappan pottery, three beads each of gold and semi-precious stones.



Fig. 4.205: Burial with a rock-cut pit, Dholavira

Cairn Burials

The cairn burials types are of various sizes depending upon the number, variety of pottery as burial goods or its absence and found raised over a round, oval, long oval or egg-shaped pit.[362] The cairns are also found raised on very shallow pits, devoid of any burial goods and often smaller in size. The smaller ones are only 60 cm across and 30 cm in depth and hence interpreted as symbolic burials. The larger cairns are nearly 3 m across and the bigger burials have an elaborate arrangement of pottery placed on the eastern and northern portion of the burial. The cairn examples of varying sizes and dimensions are of 2.76 x 1.58 x 0.40 m, 3 x 1.5 x 1.57 m and 2.5 x 1 m. The circular ones have varying diameters from 1.75 – 2 m with a depth of 30 cm and above.



Fig. 4.206: Example of an oval cairn burial, Dholavira

Stone-lined Circle

Stone-lined circles, ¾ th of a circle and half-circle containing inside them single or multiple grave like structures are noticed from the cemetery area. However, none of these graves has been excavated and hence the pattern and nature of the burial architecture and grave goods is not known.

Fractional Burial

Instances of fractional burial have been brought to light from various parts of the settlement and beyond. The first one is on the southern portion of middle town, where a fractional burial in the form of human tooth and fragments of small bones were found in a shallow pit, which is marked on the ground by two vertical stones on either end. No burial goods were found associated with this grave except some fragmentary potsherds of Stage III. Another fractional burial was excavated to the south of the main cemetery area under a thin surface soil layer, which consisted of broken bones like cranium, a radius, three phalanges, and some bricks associated with lot of broken pottery. A few grave-like structures are also reported from atop the defensive walls of castle and walls around the stadiums. However, these structures have not been excavated and hence its exact nature and type could not be ascertained.

Inhumation burials

The cemetery area yielded only one example of an inhumation burial, which came to light accidentally by the discovery of a copper mirror in sprucing up the area. The clear indication of the burial pit came to light when proper excavation was carried out and the burial measured 1.95 X 1.18 m (NS X EW). The excavation brought to light the remains of a skeleton laid in N – S orientation with the face towards west in association with burial goods like pottery, shell bangles. The skeleton was found in a damaged condition as evidenced by missing portions of skull, left leg and left hand. The individual is identified as that of a female based on the smoothness of the bones and associated burial goods like copper mirror and shell bangles. Some more graves with skeletons with minimum or no grave goods in the form of pottery were exposed from the several parts of the city of a date posterior to Stage V. One example was excavated on the top near the north gate of castle, which contained a skeleton in a shallow pit, by

the side of a structure of Stage V. The skeleton is in an E – W orientation, placed in a crouched position, head at the east and facing south.



Fig. 4.207& 4.208: Inhumation burial in the cemetery area, Dholavira



Fig. 4.209: Inhumation burial from lower town, Dholavira

An interesting evidence came in the form of an embedded chert blade in the cervical area of the vertebrae, which indicates the possible reason of the cause of death of the individual. The grave good consists in the form of a bowl only. The burial is dated to Stage VII based on the evidences and circumstances. The lower town also yielded some graves overlying the remains of Stage V, with and without skeletons. The positioning of the skeleton on its left with the legs drawn upwards in a foetal position is rather interesting and tempts one to compare with the evidences of Mehrgarh, Shahi Tump, Sohr Damb / Nal, Nindowar, etc., in a One grave yielded a skeleton which on examination indicated that of a robust body and ripe in age when deceased.

Hemispherical Monuments

The hemispherical tumuli, totalling six in number are the most conspicuous structures in the cemetery area and to the north of water body mentioned above, out of which, two (Tumulus – 1 and Tumulus – 2) were excavated. The excavated tumuli have yielded excellent evidence regarding the funerary architecture and mode of ritualistic traditions of Harappans at Dholavira. The basic construction mode of both the tumuli is

quite similar and based on the excavated evidences; the excavator has identified the following five-construction sequence:[363]

(i) *cutting of a large and deep rock cut chamber;*

(ii) *placement of offerings in the chamber;*

(iii) *construction of a broad circular mud-brick platform over the ground around the chamber;*

(iv) *raising of a peripheral ring wall of mud-brick upon the said (basal) platform; and*

(v) *filling of the open shaft above the chamber and within the encircling brickwork and raising it into a pile-up earth, etc. so as to impart a domical form to tumulus-1 and flattened top to tumulus-2.*

However, even with the above basic similarities, the following differences between the tumuli were also noticed by the excavator:[364]

(i) *only Tumulus-1 was furnished with radial brick walls emanating from the peripheral rim of brick-work to run on the basal platform towards the central area, whereas the other one is devoid of any such walls, and*

(ii) *the central chamber of Tumulus-2 was covered with a huge capstone while the other did not yield such a feature.*

Tumulus 1 is located on the northwestern bank of water body mentioned above and 75 m southwest of Tumulus 2. It is hemispherical in shape with a basal diameter of 33 m and rises 2.9 m from the surrounding fields. The excavation indicated that in the ancient past, this funerary monument was subjected to several additions and interventions during the second half of third millennium BCE. The architecture of the monument consists of a 2 m high mud-brick ring rising from a basal platform, which is topped by a further one-metre mud-brick ring from which emanates eight – ten radial brick walls terminating at the central oval-like stone structure as shown in the figure below.

The circular mud-brick platform rests on the bedrock and the top surface of the bedrock itself well prepared and plastered with a bed of white clay and colourful bands of clay. The outer periphery of the platform served as the base for the peripheral mud-brick ring wall, while the inner portions served as the base for the radial wall. The

radial walls have been caused considerable damage due to the interventions mentioned above and only three of them are preserved. The central portion is of north-south orientation with a flat top. This is also accompanied with several stone structures of various shapes and dimensions that are interpreted as funerals belonging to different periods and times. The excavation along the southwestern portion of the tumulus between two radial walls brought to light features like construction of radial wall in two phases with considerable gap in between and the central pit goes into the bedrock. The excavation also brought to light the components of the tumulus as follows:[365]

(i) *rock cut chamber and the offerings;*

(ii) *successive phases of filling;*

(iii) *a broad and massive ring of brick work round the chamber forming a basal platform;*

(iv) *enormous peripheral rim of brick work on the said platform; and*

(v) *radial walls on the platform and filling between the walls*

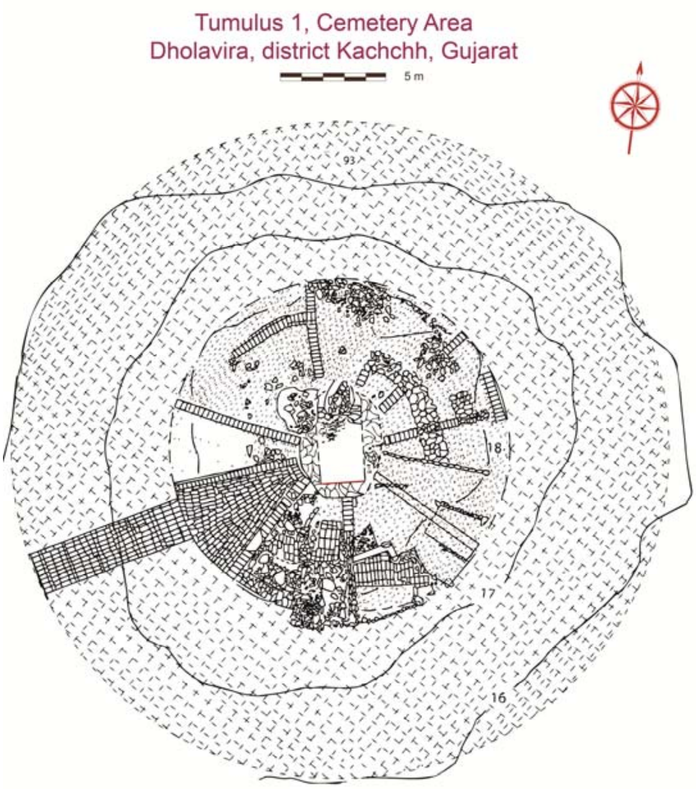


Fig. 4.210: Tumulus 1, Cemetery Area, Dholavira



Fig. 4.211: General view of the Tumulus 1



Fig. 4.212: General view of the Tumulus 1





Fig. 4.213& 4.214: Details of the funerary offerings inside Tumulus 1

A total of three phases of funerary additions and alterations has been noticed, which also coincided with the increase in height of the monument considerably during the second phase additions and not so considerably during the third phase additions. The third phase and posterior to the addition of features also witnessed the introduction of large number of stone graves of varying sizes, dimensions and orientations. A portion of the central funerary chamber was excavated, the dimensions of which are 3.6 X 1.9 X 1.9 (l X b X h) with its orientation in north-south direction. The fullest extent

of the chamber however could not be exposed as the excavations were restricted to only the intervening space between two radial walls. The funerary offerings in the partial portion of funerary chamber are exceedingly rich and consist of pottery (*eight tall, pedestaled vases, small pots, a few medium-sized jars and dish-on-stand*), and jewellery (*solid gold bangle having incurved ends, a gold bead, agate beads and a complete necklace of large disc beads of steatite stringed in a copper wire with its both ends being turned into hooks for interlocking*).The pottery offerings are much different from the habitation ones, plain and simple and only one vessel has crimson red slip and black bands.

The radial walls along with the circular mud-brick ring walls of the funerary monument have been interpreted by the excavator as a spoked wheel and the basal circular platform as the traditional *vedi*.[366] The beginnings of Tumulus 1 is traced to Stage III based on the presence of colourful bands of clay on the top of bedrock and exterior of circular platform; continued in use during Stage IV by the addition of radial walls and ultimately in Stage V multiple graves were added at the top. Further, the excavator also supports this chronology based on the presence of Stage III potsherd fragments from the mud-bricks of basal platform, first phase of radial walls and elsewhere while the subsequent structural phases have potsherd fragments of Stage IV and V in the mud-bricks. The excavator further attributes the importance of Tumulus 1 characterised by *'architectural intricacy and underlying symbolism'* that might have been built for an exceedingly important person, due to the continued use and expansion and ultimately the location of multiple graves pertaining to Stage V and posterior to it.

Tumulus 2 is also located on the northern bank of water body and to the northeast of Tumulus 1 and measures 25 – 28 m in diametre while the extant height is 3.35 m. However, on excavation, the actual height of the tumulus proved to be 2.9 m while the diametre is 22 m. The tumulus consists of the following components:[367]

(i) *a rock cut chamber covered with a large stone slab;*

(ii) *a two-tiered mud-brick construction encircling the chamber; and*

(iii) *a sand filling topped by rock material*

The mud-brick used in the construction consists of varying dimensions like 9 X 18 X 36 cm; 10 X 20 X 40 cm and 11 X 22 X 44 cm (*l X b X t*), all typical of the Harappan radio of 1 : 2 : 4. The rock-cut chamber in north – south orientation measures 4.6 X 3.06 X 1.8 m (*l X b X d*). The excavation was carried out only to a depth of 1.8 m inside the rock-cut chamber due to the presence of large number of broken stone slabs fallen inside. The two-tiered mud-brick construction displays a terraced cross-section as the upper tier is receded by 1.2 – 1.55 m from the lower one. The rock-cut chamber was originally covered with a huge stone slab, which is broken into many parts now and plunge into the chamber. As per the excavator, the covering stone slab had broken and collapsed due to massive weight of overlying earth used to cover the voids above the rock slab.




Fig. 4.215: General view of the Tumulus 2 (left);
4.216 : Details of interior of Tumulus 2 (right)



Fig. 4.217: Details of interior of Tumulus 2, Dholavira

It has been interpreted by the excavator that the original offerings of the funerary chamber is not known while a shaft was sunk in later stage and fresh offerings were made which consist of two full pots. Further, the exact nature and extent of the fresh offerings could not be ascertained due to limited nature of digging limited by fallen stone slab fragments.

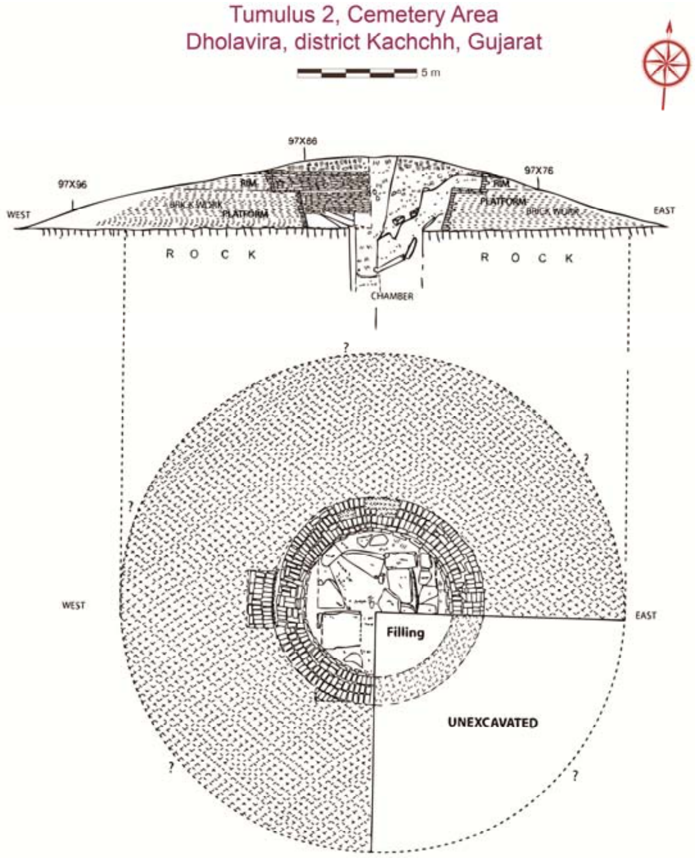


Fig. 4.218: Plan and elevation of Tumulus 2, Cemetery Area, Dholavira

The evidence presented by different burials and funerary architecture at Dholavira clearly indicates the divergent rituals and practices followed by the Harappans here. It also points to the presence of divergent social variations in the local population at Dholavira that might have necessitated the variations in building of funerary structures. The presence of hemispherical tumulus also indicates a special variety of funerary architecture that has not been witnessed so far from other Harappan sites in Gujarat and elsewhere. The architectural intricacy, the elaborate construction methodology and continuous usage clearly indicates its usage by a special class of

people, probably by the ruling class as argued by the excavator of Dholavira. Thus, Dholavira presents excellent evidence on the funerary practices of the Harappans.

4.3.4 Rakhigarhi

Rakhigarhi (*29^0 17' 30" N; 76^0 6' 50" E*), district Hissar, Haryana is one among the five largest Harappan settlements and one among the two largest Harappan settlements in India, in dynamism it ranks only after Dholavira.[368] The site was excavated for three field seasons by the Institute of Archaeology, Archaeological Survey of India during 1997-98[369], 1998-99[370] and 1999-2000.[371]Rakhigarhi is located on the right bank of River Drishadwati (Chautang), now dried up and is a tributary of River Ghaggar (Sarasvati).[372]

Ever since the site was first reported by Acharya Bhagwan Dev, it was re-investigated and re-studied by Suraj Bhan in 1963-64,[373] 1966-67,[374] and 1975[375], which enabled to identify the early, and Mature Harappan remains at this site. Later the site was studied[376] by scholars like Silak Ram, R.S. Bisht, J.P. Joshi, which brought to light the true potential of the site as it ranks among the five largest Harappan settlements; the area is now estimated at 118 ha[377]. The excavations for field seasons brought to light the remains of Early Harappan habitation in RGR 6, early and mature Harappan in RGR 1 & 2 and only Mature Harappan habitation from RGR 4 & 5.[378] The early Harappan habitation in RGR 6 has been sub-divided into pre-formative urbanism (Period Ia) and formative urbanism (Period Ib).

The characteristics of pre-formative urbanism are three structural phases in RGR 6, a thick mud platform like structure, a circular structure with an entrance towards south, a rectangular structure and associated mud floors.[379] In RGR I, the structural remains consist of a circular structure with four courses of mud-bricks, post-holes, mud plastered floors and burnt-brick bats pavement; a rectangular structure. The characteristics of formative urbanism in RGR 6 include an east – west street flanked by houses, three structural phases, a rectangular structure built of mud-bricks in 1 : 2 : 3 ratio, oblong pits showing firing activity, a house consisting of two rectangular rooms with courtyard, circular pit hearth.[380]

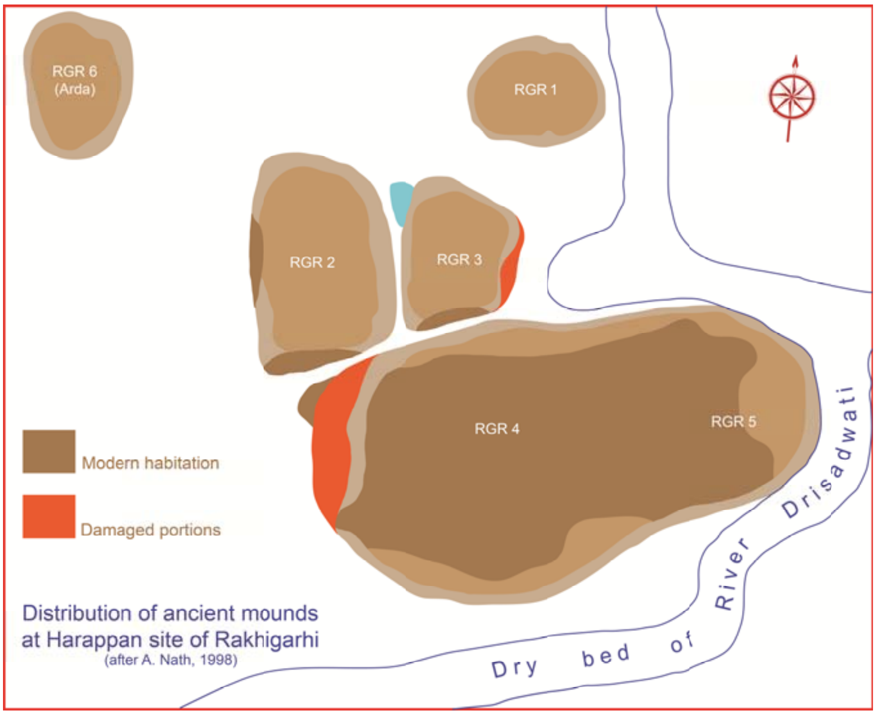


Fig. 4.219: Distribution of ancient mounds, Rakhigarhi

The ceramic industry of Early Harappan period consists of all six fabrics of Kalibangan, grooved ware of Hakra origin and chocolate-slipped ware of Rakhigarhi variety.[381] The prominent antiquities of this period include graffiti on potsherds, terracotta balls, bangles, wheel, toy cart frames, rattles, figurines; stone quern and muller; copper fish-hook, bangle, arrow-head; beads of shell; terracotta seal and chert blades.[382]



Fig. 4.220: General view of the mound at Rakhigarhi



Fig. 4.221: General view of the mound at Rakhigarhi

The Period II at Rakhigarhi is represented by Mature Harappan habitational remains found in RGR 2, 4 & 5, while RGR 1 & 5 yielded evidence of craft working; a Mature Harappan cemetery in RGR 7.[383] The important findings of Mature Harappan phase include that of a brick kiln, many small kilns, bead making area, north-south running street, series of mud-brick platforms, a mud-brick podium encased by burnt-bricks; mud-brick fortification wall (25 m long and 12 m width with 15 courses rising to an extant height of 1.5 m) in RGR 2 on the west; covered public, street and house drains generally terminating into a soakage jar.[384] The ceramic industry of this phase consists of red (red-slipped, black painted red-slipped and black painted wares), grey, non-glazed Reserved Slipped, cut and cream-slipped wares with important shapes like perforated jars, goblets, dish-on-stand, vase, jar, ledged-rim vessel, fluted-vessel, ribbed-vessel, dish, basin, trough, etc.[385] The prominent artefacts include gold fillet, beads, silver, copper and shell bangles, plain and etched beads of semi-precious stones, beads of steatite, faience, chert weights and measures, gamesmen and game board.[386]



Fig. 4.222: General view of the mounds, Rakhigarhi



Fig. 4.223: General view of early Harappan remains, RGR 6, Rakhigarhi

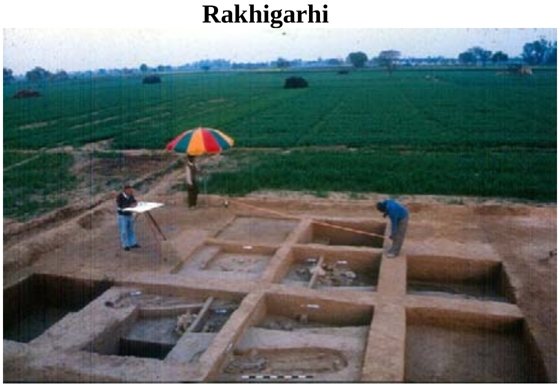




Fig. 4.224: General view of the cemetery area, Rakhigarhi (left); 4.225: Close up of the burials (right)





Fig. 4.226 & 4.227: Layout and arrangement of skeleton and grave goods in Burial 1, Rakhigarhi

The funerary remains at Rakhigarhi are found nearly 200 m to the north of RGR 1, 2 and 3. Excavation in an area of 10 m X 10 m brought to light a total eleven burials.[387] The burials belong to the primary inhumation type extended burials wherein the dead ones were interred in an oblong pit in north – south orientation with the head turned towards the east.[388] Three phases of burial activity in terms of internment have been noticed with Burial 11 being the earliest among them while the last phase burials are damaged. The grave goods consist generally of vases, bowls, pans, dish-on-stand, etc., placed near the head while three burials have shell bangles in their left hand and a miniature gold armlet found in one case.[389]

4.3.5 Kalibangan

Kalibangan (*29 28' 27" N; 74 7' 51" E*), meaning black bangles, is located on the left bank of River Ghaggar (generally identified with ancient River Sarasvati) in district Hanumangarh in Rajasthan. The site was first reported as 'Kalibung' by James Tod,[390] followed by Tessitori[391] who visited the site in 1916-19 and extensively recorded the destruction of the site due to removal of baked bricks, terracotta caves of various shapes by an engineer namely Warren in 1900 for use as ballast for the section of Jodhpur – Bikaner railway connecting Suratgarh with Hanumangarh.[392] It has been recorded that Tessitori also carried out some sporadic digging at the site which brought to light a square brick platform; a burial urn containing smaller vases, terracotta cakes, charred bones and ashes on the eastern mound; *'.....122 cm wide well, with its lining made of trapezoidal bricks at the smaller mound'*;[393] surface collection of pottery, terracotta cakes, beads and bangles.[394] This was followed by the visit of Aurel Stein in 1947, who even though noticed the importance of the site for its remains and identified them as remnants of extensive kilns, failed to recognise it as a site of Indus

Civilization.[395] The renewed exploration activities by the Archaeological Survey of India during post-Independence era by A. Ghosh along the dry bed of River Sarasvati brought to light the importance of Kalibangan as the largest in the Bikaner area, thereby registering its twin parallel mounds rising to a height of 9.15 m.[396] The site was excavated for nine field seasons during 1960-61,[397] 1961-62,[398] 1962-63,[399] 1963-64,[400] 1964-65,[401] 1965-66,[402] 1966-67,[403] 1967-68,[404] and 1968-69[405] by the Archaeological Survey of India. The remains of the ancient Harappan settlement now measures around 31.83 ha. The mounds are named as KLB 1 (western mound), KLB 2 (middle mound) and KLB 3 (third mound). The excavations brought to light remains of Early Harappan remains exclusively in the lower levels of KLB 1 which came to an end due to some seismic activity, after which the Harappans occupied this area while at KLB 2, early Harappan pottery continued briefly before Harappans started to emerge in this part of the site.[406] The KLB 3 has no remains of Early Harappans and contained only a series of fire-altars of the mature Harappans.[407]

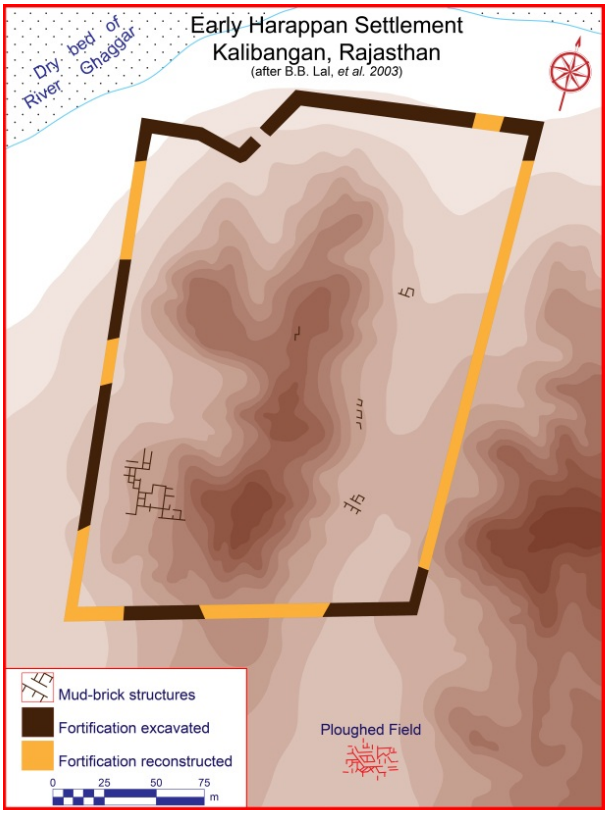


Fig. 4.228: Plan of early Harappan settlement, Kalibangan

The characteristic features of Early Harappans at Kalibangan consist of the following:[408]

(i) *a fortification of mud-brick having dimensions of 250 X 180 m (NS X EW); ratio of mud-bricks being 1 : 2 : 3; two phases of fortification, during the first phase basal width was 1.9 m and in the second phase it was 3 – 4 m, addition being made on the inner side; faces of wall plastered with mud; a ploughed field;*

(ii) *Houses constructed with mud-bricks in alternate courses of headers and stretchers; burnt bricks used in areas of drains; normal plan of houses consist of 3 – 4 rooms, a courtyard, few rooms located to the northwest having tandoors; alignment of houses different from those of mature Harappans; five phases of building activity;*

(iii) *An east – west running lane of 1.5 m width; another lane with rooms on one side and house on opposite with a 1 m threshold;*

(iv) *Characteristic pottery designated as Fabrics A, B, C, D, E and F based on the surface colour treatment and incisions; red, buff, grey, reserved slipped, knobbed wares; and*

(v) *Antiquities repertoire consist of flaked tool industry of chalcedony and chert; beads of carnelian, steatite, faience, copper and gold; and terracotta cakes, copper celts, etc.*



Fig. 4.229: House remains of early Harappan levels, Kalibangan



Fig. 4.230: Houses flanking a 1.5 m wide lane, Kalibangan



Fig. 4.231: Pottery and artefacts of early Harappan level, Kalibangan

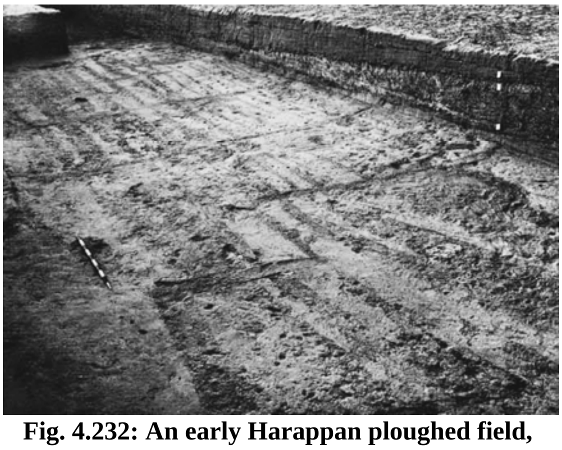


Fig. 4.232: An early Harappan ploughed field, Kalibangan

The chronology of the Early Harappans at Kalibangan has been estimated between 3000 and 2700 BCE[409] while their exact origin at this site has been attributed as a *"slow and independent evolution from hunting gathering micolithic communities."*[410] The Early Harappans abandoned KLB 1 after a devastating earthquake and settled in the area of KLB 2, co-existed with the Mature Harappans up to middle levels, and gradually gave way to the dominant Harappans. KLB 1 was occupied by the Mature Harappans after a temporary non-occupation indicated by the presence of thin wind-blown deposition.[411] The Period II at Kalibangan is represented by the arrival of Mature Harappans, which saw a major transformation in the overall plan and layout of the city. The city is represented by two distinct divisions, named here as **citadel** (KLB 1) which occupied the already existing Early Harappan habitation and the **lower town,** an extensive mound towards the east, the dimension respectively are 240 X 120 m (NS – EW) and 360 X 240 m (NS – EW).[412] The characteristic features of Period II at Kalibangan include the following:[413]

(i) *Two major divisions of the city, named as citadel and lower town, separated by 40 m gap; mud-brick fortification around both divisions ranging in width from 3 – 7 m, gateways and bastions; bricks in 1 : 2 : 4 ratio;*





Fig. 4.233 : Part of partition fortification wall (left);
4.234: Rectangular salient in the citadel, southern face (right)





Fig. 4.235: Row of 'fire-altars' on one of mud platforms (left); 4.236 Brick lined pit with bones of bovine, antlers (right) both in citadel





Fig. 4.237: Houses in lower town; detail of a house complex (left); 4.238: Streets flanked by houses (right)

(ii) Two divisions in citadel with a common separating wall in between; southern division elaborately fortified, five to six massive mud-brick platforms; two entrances on the south and north of citadel, two structural phases in the northern gateway complex;

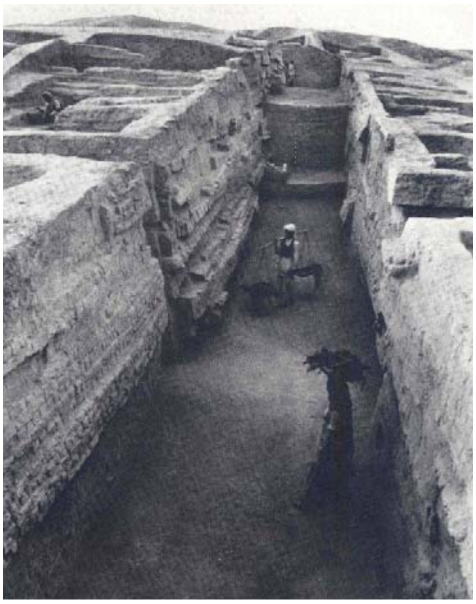


Fig. 4.239: North – South running street in lower town



Fig. 4.240: Artefact finds from Kallibangan; seals, sealings, chert weights, scale and comb

(iii) Northern half of citadel consist of residential buildings, gap left between houses and fortification wall and paved with brick-on-edge; thoroughfare running north to south;

(iv) Fortification of lower town displays three to four structural phases, four arterial streets running N-W and E-W; width in multiples of 1.8 m, with maximum width at 7.2 m; house drains have soakage jars and no street drains noticed; two entrances on the fortification one each on north and west;

(v) *Layout of lower town indicates variation in alignment with fortification; houses mostly constructed with mud-bricks; wedge shaped bricks also in use for drains;*

(vi) *Artefact finds include that of characteristic of Harappan civilization, notable among them being a cylindrical seal, a terracotta cake inscribed with a horned deity on one side and a human figure drawing an obscure animal on other side; a terracotta feeding cup with cow's head; seals and chert weight; a terracotta graduating scale (incomplete);*

(vii) *Evidence of wheat and barley in this period with barley dominating by its presence indicating it as the staple diet;*

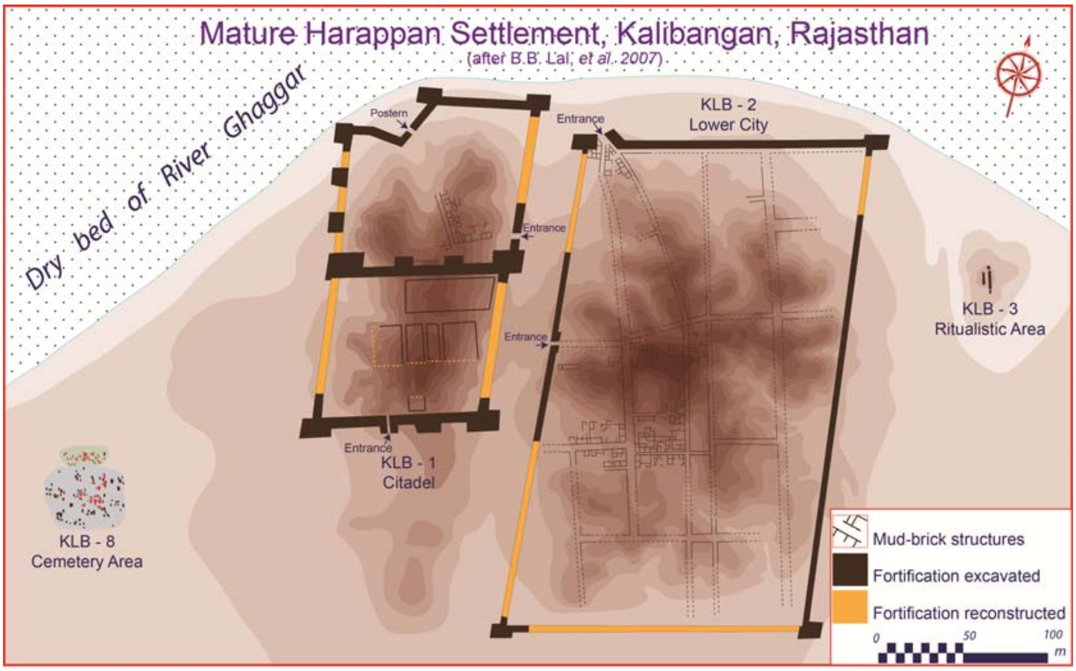


Fig. 4.241: Plan of mature Harappan settlement, Kalibangan

(viii) *A modest structure of mud-brick traced in a separate mound located 80 m east of lower town; one of the room contain four to five fire altars; no other remains of habitational purposes; indicating it as a ritualistic structure;*

(ix) *A cemetery located nearly 300 m west-southwest of the main habitation mound.*

4.3.5.1 The Cemetery at Kalibangan

The cemetery area, which is located nearly 300 m west-southwest of the habitation area at Kalibangan, is at present very close to the flood plain of River Ghaggar, which however could have been beyond the reach of the floods.[414] The graves

were brought to light due to various factors like salt action, patches of loose soil and difference in the filling material of burial pits, sound, ant actions, negative crop-marks, which gave a clear indication of patches, mostly rectangular or oval, and on trial digging revealed the presence of graves invariably.[415] The excavation brought to light three types of burials as mentioned below:[416]

(i) Extended inhumation in rectangular or oval pit;

(ii) Pot-burial in a circular pit and

(iii) Rectangular or oval grave-pit containing only pottery and other funerary objects.

The characteristic feature of the cemetery area at Kalibangan is that separate areas were demarcated for different burial types, and the area was divided into two prominent ones, one each for the extended inhumation and other for pot burial types.[417] Further, it was also noticed that within the demarcated areas are sub-areas in the extended inhumation type, which might have been meant for family groups. The digging of grave pits to a safer depth, nearly no overlapping of burials except in only one case in extended inhumation and in some cases in pot burials, are among the hallmarks of Harappan cemetery at Kalibangan.[418]

Extended inhumation in rectangular or oval pit

This type of burial consist of a rectangular or an oval grave pit in north – south orientation with the head placed towards the north, adorned with funerary goods placed near the head like cooking pots, personal jewellery, bronze mirrors, etc., and refilled with the same earth or mixed with compact white speckled clay, the latter could have been brought from river bank.[419]

Fourteen burials belong to this variety and they are 4& 5, 8 – 12, 26 – 29, 31, 32 and 34.[420] A brief survey of some of the burials under this category is given below:[421]

Sl. No.	*Burial*	Orientation& Nature	*Length*	Width	*Depth*	Burial goods
1.	***4***	NW – SE N 14^0 15’ W deviation	*1.63 m*	0.9-1.42 m	*0.24 m*	8 pots placed west / northwest of skull (Dish-on-stand, vase, lids)
2.	***5***	NW – SE	*2.22 m*	0.9-1.4 m	*0.4 m*	5 pots (plate or dish, lota shaped plain vase and a lid, miniature vase at the

Sl. No.	*Burial*	Orientation& Nature	*Length*	Width	*Depth*	Burial goods
						centre of pit)
3.	***8***	N – S N 7^0 15' W deviation **Supine**	*2.94 m*	0.8-1.17 m	*0.75-0.85 m*	8 earthen wares with 7 on northern side of pit above skull and at a lower level of skeleton (dish-on-stand north of skull)

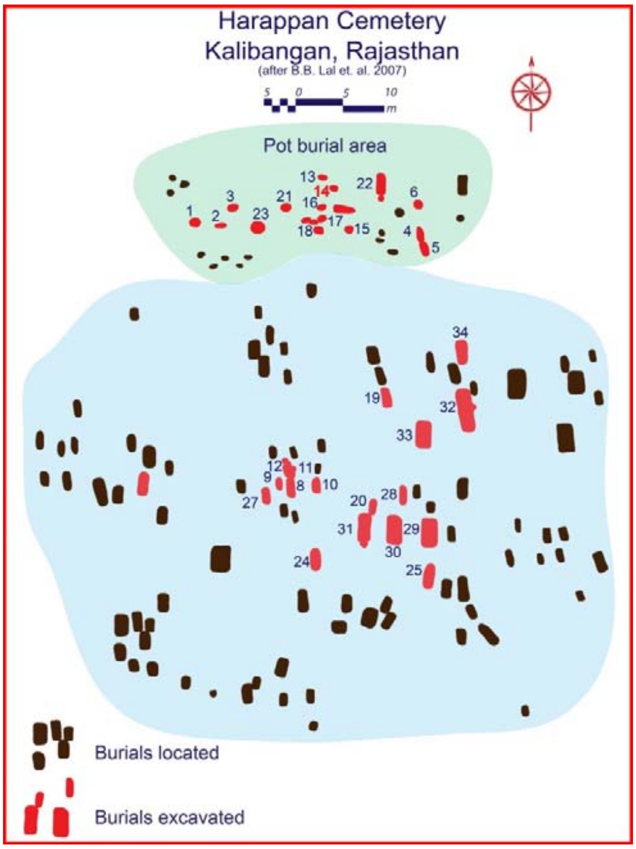


Fig. 4.242: Plan of Harappan cemetery, Kalibangan

Sl. No.	*Burial*	Orientation& Nature	*Length*	Width	*Depth*	Burial goods
	9	N – S **Child**	*1.61 m*	0.58 m	*0.48 m*	4 earthen pots kept north of skull (small beaker, two medium sized vases and a small vase kept with their mouths facing the skull, bowl / lid); evidence of 3 trephined holes along with burning mark.
4.	***10***	N – S **Female**	*4.66 m*	0.96-1.56 m	*0.1-0.15 m*	20 earthen pots, near head at the northern portion of pit, greater concentration being at NW, one pot near eastern side near a fine copper mirror (dish-on-stand, cup-on-stand, conical bowl, vase); circular burning mark on left humerus might be accidental.

Sl. No.	*Burial*	Orientation& Nature	*Length*	Width	*Depth*	Burial goods
5.	***11***	N – S N 3^0 30' W deviation	*2.6 m*	1.26 m	*0.4 m*	Brownish cloddy clay spread before putting the body. 3 full pots only could be found due to disturbance by Burial 12, all at a higher level than the skeleton; evidence of sharp vertical cut marks on inner side of knee with no sign of healing indicating probable murder of the individual due to excessive bleeding.
6.	***12***	N – S Probably of 3 individuals	*3 m*	2.3 m	*0.75*	Brownish cloddy clay spread before putting the body. All skeletal material lying above the layer of pots. 3 skulls at SW part, loose bones in disarticulated position; the molars show marked attrition of cusps, which may be due to left side chewing or coarse food in the diet.
7.	***26***	N – S **Male adult of 30 years**	*3.25 m*	1.28 m	*0.9 m*	Filling of brownish cloddy clay mixed with greenish sand. 7 pots placed near north of skeleton (lit, dish-on-stand, bowl, miniature goblet, a vase); a crippled man, showing pathological deformities in several bones like, radius, ulna, hand bones of left side.
8.	***27***	N – S	*2.68 m*	0.89-1.18 m	*0.42 m*	7 pots (globular bowl, dish-on-stand all near the skull and five pots below the leg portion.
9.	***28***	N – S	*2.77 m*	0.97 m	*0.7 m for pots*	Pots placed below the skeleton, over natural soil, then rest of pit packed with 13-14 cm of hard compact clay mixed with yellow speckled *chunam*, then body kept over this filling. 12 pots near the northern end at various levels, dish-on-stand, two lids, two goblets; at the southern end dish-on-stand, vase, a bigger vase, *lota* shaped goblet, cup shaped bowl, and a miniature wine cup.
10.	***29***	NE – SW Mud brick chamber, old adult	*4.1 m*	2.1 m	*0.86 m*	Chamber external (4 X 2 m), internal (3.2 X 1.28 m); *chunam* plaster on interior of wall; 70 pots in two groups – first of pots including painted ones to the north of skeleton and other mainly of plates and lists, a jar and a vase at the centre of pit over which the body is placed. The pit filled with brick-bats, speckled *chunam* mixed with greenish sand.

Sl. No.	*Burial*	Orientation& Nature	*Length*	Width	*Depth*	Burial goods
11.	***31***	N – S	*4.04 m*	2.08 m	*1.35 m*	Pots lying in northeastern part, part of skeleton in the centre. Pots in various levels, but mostly at the bottom of pit on a layer of greenish sand. Globular vase, painted cup-on-stand.
12.	***32***	N - S	*5 m*	1.7 m	*1.5 m*	Full view not obtained as another burial lies above; southern portion only exposed, 'S' shaped jars of various sizes, bit pot, cup-on-stand, a base for round bottomed jar, a rimless jar and its lid. Pit not filled up after burial, but got filled due to natural agencies.
13.	***34***	N – S Age 16-18 yrs	*3.8 m*	3.8 m at top & 3 m at base	-	Skeleton found on western side of pit in supine position; above head region, 4 pots found, viz., a big jar, button based glass and two *lotas*.



Fig. 4.243: Burial 26, Kalibangan



Fig. 4.244: Burial 27, Kalibangan



Fig. 4.245: Burial 28, Kalibangan



Fig. 4.246: Burial 29, Kalibangan

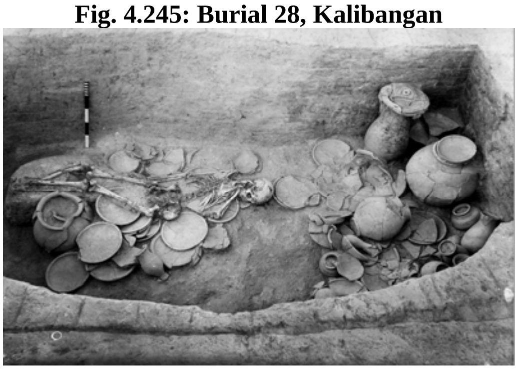


Fig. 4.247: Details of Burial 29, Kalibangan

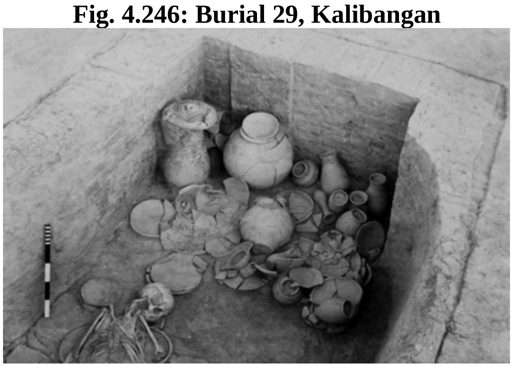


Fig. 4.248: Details of Burial 29, Kalibangan

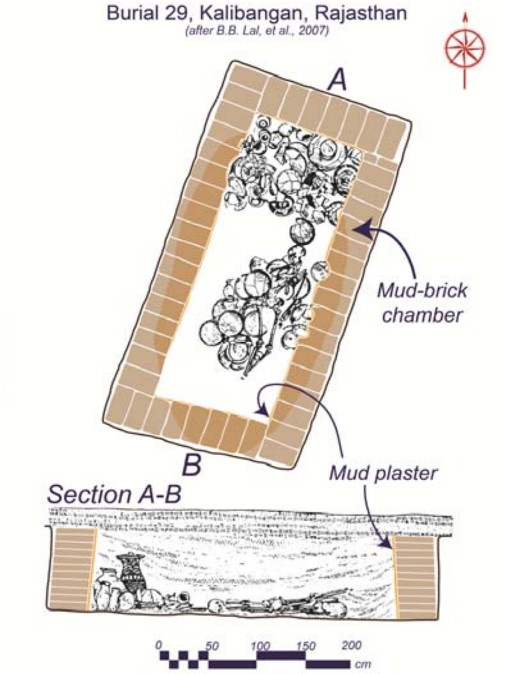


Fig. 4.249: Details of Burial 29, Kalibangan, Rajasthan



Fig. 4.250: Burial 32, Kalibangan



Fig. 4.251: Burial 32, Kalibangan

Rectangular or oval grave-pit containing only pottery and other funerary goods

This type of burials are generally characterised by large rectangular pits measuring 4 X 2 X 1.75 – 2 m (l X b X d) in north – south orientation and devoid of any skeletal finds.[422] The burials, however, contain grave goods in the form of Harappan pottery in varying numbers, generally interred at the bottom level of the pit, although variations do occur.[423] The excavated remains reveal that these burial pits were never filled up to the top level but to the level of just burying the funerary offerings as indicated by laminated bands of water and wind borne deposits and it is also been argued that the pots at higher levels were interred during rituals at later stages.[424] A brief survey of some of the burials under this category is given below:[425]

Sl. No.	*Burial*	Orientation & Nature	*Length*	Width	*Depth*	Burial goods
1.	***14***	N – S	*2.5 m*	1.08 m	*0.11 m*	Disturbed considerably; burial pots consist of two lids and two goblets of

Sl. No.	***Burial***	**Orientation & Nature**	***Length***	**Width**	***Depth***	**Burial goods**
						Harappan repertoire.
2.	***19***	N – S	*3.75 m*	1.3 m	*0.75 m*	Burial pottery found in NW and SW corner; they consist of dishes, hallow lids or dishes, handled cup, vases, perforated jar, dish-on-stand, cup-on-stand, beakers, trough, etc. The placement of perforated jar inside the trough and a small vase in turn inside perforated jar is an interesting find *in situ*.
3.	***22***	N – S	*4.3 m*	2 m	*1.2 m*	Pots found in the northern portion; fragment of shell bangle, beads of carnelian, steatite disc beads, gold foil. Pottery shapes include jar / urn, dishes, lids, casket, goblets, dish-on-stand, etc.
4.	***30***	N – S	*4 m*	2.3 m	*1.65 m*	Burial pots consist of a plate, big jar, dish-on-stand, two fine cups, glasses, flat dish, glasses with constricted necks, small vase, etc.
5.	***33***	N – S	*3 m*	1.8 m	*1.9 m*	78 pots mostly consisting of dish-on-stand, cup-on-stand, shallow plates, thin glasses, narrow mouthed jar, 'S' shaped jars, a *handi*, straight necked jar and few shell bangles. Pottery scattered throughout the pit.

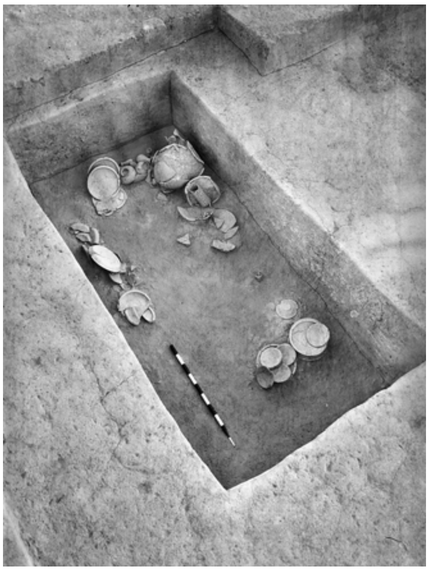


Fig. 4.252: Burial 19, Kalibangan



Fig. 4.253: Details of Burial 19 showing a perforated jar in a vase, Kalibangan





Fig. 4.254: Burial 22, Kalibangan

Fig. 4.255: Burial 30, Kalibangan

Pot Burials

The pot burials are located in a separate area to the northern portion of the cemetery area and to the north of the rectangular interments. The segregation of pot burials in the cemetery area clearly indicates the different social and religious beliefs of the population at Kalibangan. It has also been noticed that the pot burials are totally absent in the extended burial area thus indicating a clear demarcation of the usage pattern of the cemetery area by the inhabitants of Kalibangan. The general pattern of pot burials is that an earthen urn is placed at the centre and other burial pots are interred around the urn in oval or circular pits, which are shallow in nature.[426] The pot burials are generally found in clusters and groups and the rectangular / oblong graves without skeletons also occur in this area.

The overall morphology of pot burials indicate almost circular with a tendency to become oval, with diametres varying from 1.3 – 2 m (E – W) and 1.17 – 2 m (N – S), while the depths vary from 0.3 – 0.63 m.[427] As mentioned above, the general arrangement of burial pots in the pit consist of a central placement of bigger urn in the burial pit surrounded by smaller pots of varying sizes and dimensions and numbers.[428]

The number of smaller pots varies from burial to burial as indicated by the minimum number of 7 in Burial 7 to 29 in Burial 16 and their arrangement in relation to the central urn is also interesting on the fact that the major concentration is on the east and in no case they were placed on the rear of the central urn.[429] Another notable exception in the overall placement of burial pots is that in 5 burials the bigger urn was found placed near the western periphery of the pit and not exactly at the centre of the pit.[430]

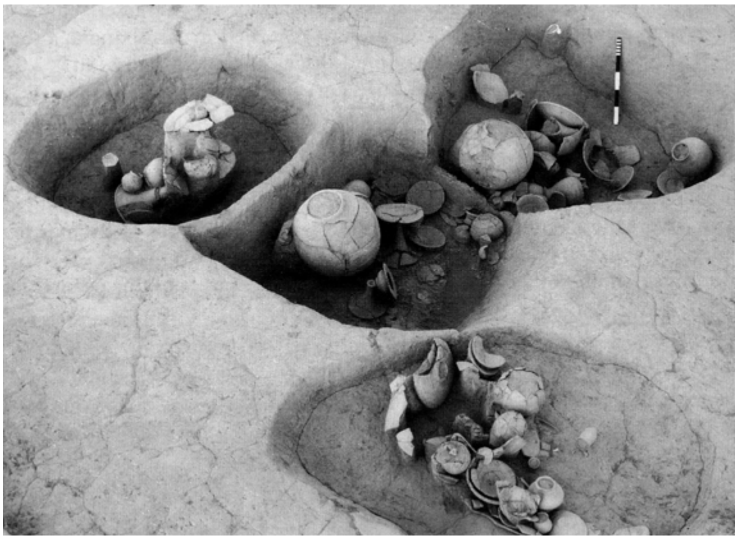


Fig. 4.256: General view of pot burials, Kalibangan

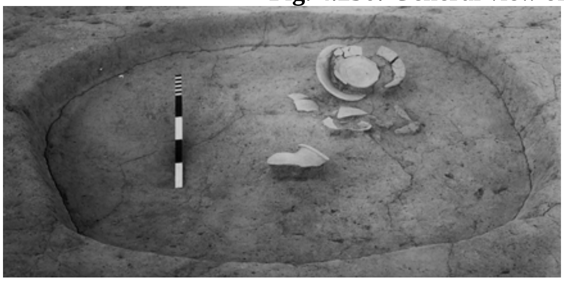


Fig. 4.257: Pot Burial 18, Kalibangan

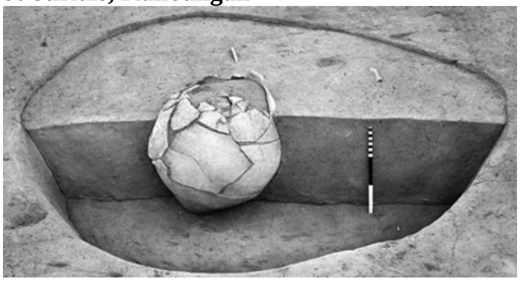


Fig. 4.258: Pot Burial 20, Kalibangan

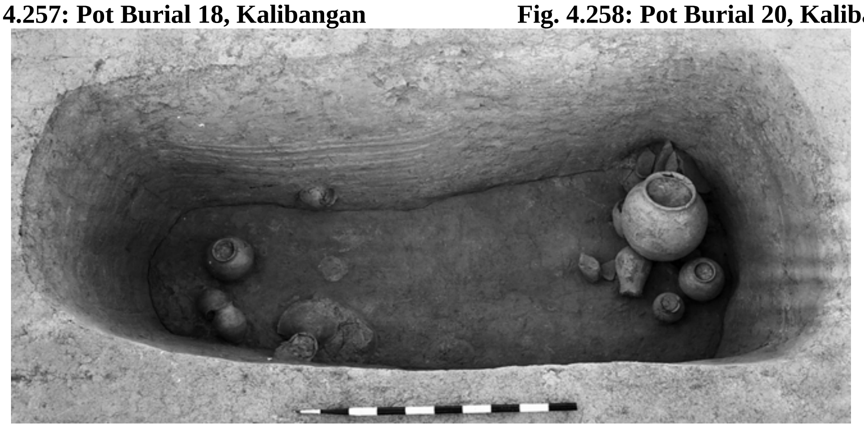


Fig. 4.259: Pot Burial 25, Kalibangan

The pottery types interred around the central urn are all indicative of the mature Harappan ones and consist of dish-on-stand, cup-on-stand, goblets, beakers, vases, dishes and platters, lids, jars, etc., with some unique and interesting shapes like *"……tall or high necked jars in Burials 6 & 7, wide mouthed storage jar in Burial 7, a globular vase with featureless rim and with a ledge in the shoulder and cup like lid in Burial 6."*[431] The other burial goods apart from the pottery finds consist that of beads of

banded agate, carnelian, jasper; shell bangles; faience earring and plumb-bob.[432] The following are the brief characteristics of the excavated pot burials:[433]

Sl. No.	*Burial*	Shape	*Length EW*	Length NS	*Depth*	Burial goods
1.	***1***	Circular	*2 m*	1.9 m	*0.63 m*	An urn or red ware, covered with triple lids; 22 smaller pots consisting of dish-on-stand, dishes, lids; bi-cone barrel bead of banded agate.
2.	***2***	Circular	*1.3 m*	1.32 m	*0.45 m*	No urn, 7 pots consisting of dish-on-stand, goblets and jar.
3.	***3***	Circular to Oval	*1.56 m*	1.6 m	*0.47 m*	Interment in western half only, eastern half empty; two layers of interment, upper layer exactly corresponding to lower interment; pots 20 in number.
4.	***6***	Circular to Oval	*2 m*	1.6 m	*0.6 m*	Disturbed by later pits; Urn placed in western periphery; 21 smaller pots concentrated on the eastern side consisting of dishes or lids, goblets; two faience objects, one resembles miniature dish-on-stand and other a pendant.
5.	***7***	Ovalish	*1.45 m*	1.75 m	*0.53 m*	Urn in western periphery, 17 smaller pots all around except rear; 5 beads of carnelian, one of jasper and a complete shell bangle; pottery shapes consist of high necked, flanged jar with carination at waist and lower body and flat base.
6.	***13***	Ovalish	*1.81 m*	1.17 m	*0.6 m*	Two layers of pottery interment; Urn placed at lower level toward west, and smaller pots all around; pots arranged in EW axis in upper level also; two long bones touching eastern periphery.
7.	***15***	Oval	1 m	*1.75 m*	-	Few fragmentary potsherds, a shallow plate.
8.	***16***	Circular	1.45 m	*1.75 m*	*0.3 m*	Disturbed, no urn and only fragmentary pottery; fragment of shell bangle in 3 pieces.
9.	***17***	Circular to Oval	1.55 m	*1.25 m*	*0.45 m*	A central dish-on-stand and 6 smaller pots on the west; no urn found.
10.	***18***	Circular to	1.4 m	*1.55 m*	*0.15 m*	Broken fragments of pottery

Sl. No.	*Burial*	Shape	*Length EW*	Length NS	*Depth*	Burial goods
		Oval				indicate presence of a big jar originally; from broken pieces, pottery shapes include jar, dish-on-stand and lids.
11.	***20***	Circular	1.6 m	*1.3 m*	*0.4 m*	An urn, two pots and a big dish-on-stand; last one tallest and biggest from the site.
12.	***21***	Circular to Oval	1.66 m	*1.3 m*	*0.3 m*	Only one lid.
13.	***23***	Roundish	1.33 m	*1.3 m*	*0.37 m*	Urn at the centre and 13 smaller pots on either side; shapes found are platters, goblet, lids / dishes; disturbed largely due to ploughing.
14.	***24***	Oblong	*1.3 m*	3.32 m	*1.05 m*	48 pots occur in different levels; most of the pots placed at the northern half of pit; a few at a higher level and on the western part; other pots include lids, big jar, small *lota*, vase, dish-on-stand, globular *lota*, globular handi, constricted glass and numerous other sherds.
15.	***25***	Elongated oblong	*1.3 m*	3.1 m	*1.17 m*	Bottom of pit laid with greenish sand; pit filled speckled clay mixed with greenish sand; 14 pots placed in two distinct groups, one each on the northern and southern ends; central portion empty without any evidence of skeletal remains; northern group has 8 pots consisting of a big jar, three pots, dish-on-stand, *lota*, gourd shaped vase; southern group has 5 pots consisting of a cup-on-stand, tapering vases, *lota*.

The average height for the adult males is estimated from 1.75 – 1.55 m while for the female adults it is 1.45 – 1.55 m indicating a fairly tall group of people while the maximum age of persons found was around 55 – 60 years.[434] The evidence of various burials indicate some sort of grouping with the rectangular burials exceeding in all, 88 such cases found in this type. Each group contained 6 – 10 burials along with one large rectangular pit, the latter containing large number of pits, which has been interpreted by Sharma[435] that they *"……were meant for depositing the earthen pots after performing*

some of ritual connected with the disposal of dead. In total, 14 such rectangular pits were encountered. Sharma also argues[436] that there could have been other modes of disposal of dead, taking into clue from the different burial traditions at Kalibangan, viz., rectangular pits containing extended inhumation and pot burials. He further argues[437]that other types of disposal of dead like cremation and / or throwing the dead body in the river waters, etc.

4.3.6 Lothal

Lothal (*22^0 31' 17" N; 72^0 14' 58" E*) is situated near the village Saragwala in Dholka taluka of Ahmedabad district in Gujarat. Lothal in Gujarati means *"the mound of the dead"* [combination of *Loth* and *thal* (*sthal*)].[438]The site was discovered by S.R. Rao in 1954 when a systematic survey was undertaken to locate Harappan settlements within the borders of India. Lothal is located between two rivers namely, Bhogava and Sabarmati.[439] The mound at Lothal measures 284.68 m north – south and 228.30 m east – west.

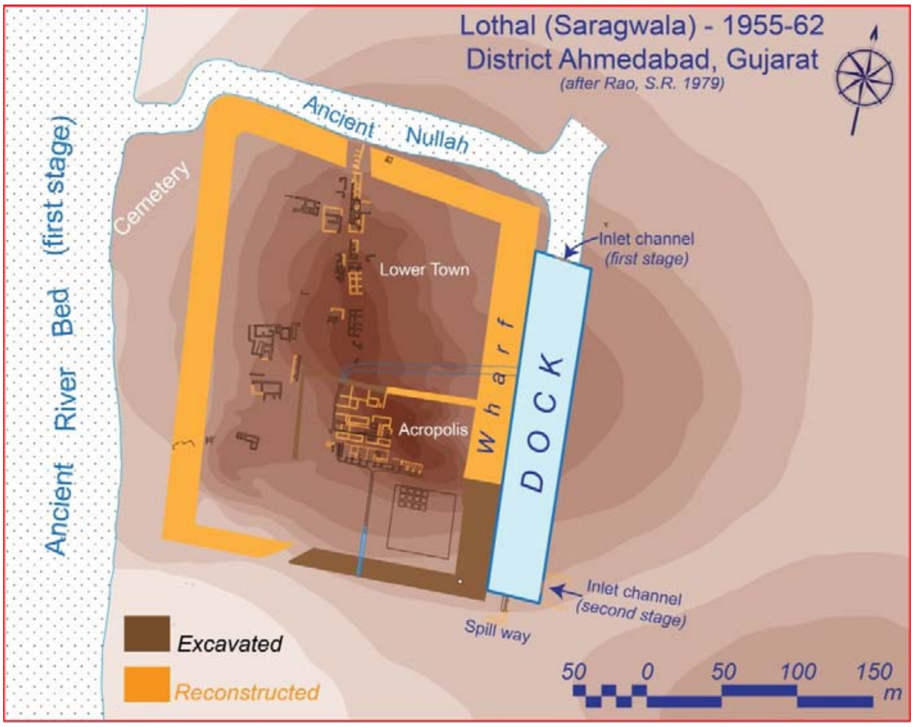


Fig. 4.260: Site Plan of Harappan mound at Lothal

The excavation at Lothal was carried out by the Archaeological Survey of India from 1955-56 to 1961-62 under the direction of its discoverer, S.R. Rao. Rao gives the

following cultural periods, structural phases and their sub-phases at Lothal based on the excavations:[440]

Period B	Sub-phase VB	Phase V
Late Harappan	Sub-phase VA	
Period A	Sub-phase IVB	Phase IV
Mature Harappan	Sub-phase IVA	
	Sub-phase IIIB	Phase III
	Sub-phase IIIA	
	Sub-phase IIC	Phase II
	Sub-phase IIB	
	Sub-phase IIA	
		Phase I

The cemetery at Lothal was located on the western edge of the mound in 1958 when six trial pits were sunk to locate the remains of burials, if any.[441] Due to the floods and increasing agricultural activities, the cemetery area was found in an eroded condition thereby exposing some skeletons of post-Indus period. The findings of fragmentary human bones on the surface provided the clue for the probable location of the cemetery area. On probing and investigation of the cemetery area, the extent of the burial remains could be arrived at 39.62 m X 30.48 m.[442]

The majority of the burials belonged to the Mature Harappan phase. The burials here found were assigned to the Phases III, IV and V based on the stratigraphy and associated cultural materials from the habitation area.[443] Three burial phases were also recognised and no burials were noticed from the Phases I and II. The excavator attributes that the cultural deposit covering each phase of the burial was too meagre due to the erosion, quick succession of burials of different phases and the disturbances caused to earlier graves.[444]

The excavation brought to light a total of twenty-one graves belonging to three structural phases. Out of these twenty graves, in sixteen graves the pit lines could be clearly made out, while in the remaining four the pit lines were not clear and it contained fragmentary bones and potsherds.[445]Lothal is also famous for the double burials it has yielded. Of the sixteen burials, which are fairly preserved, thirteen contained single skeleton each while three contained double burials.

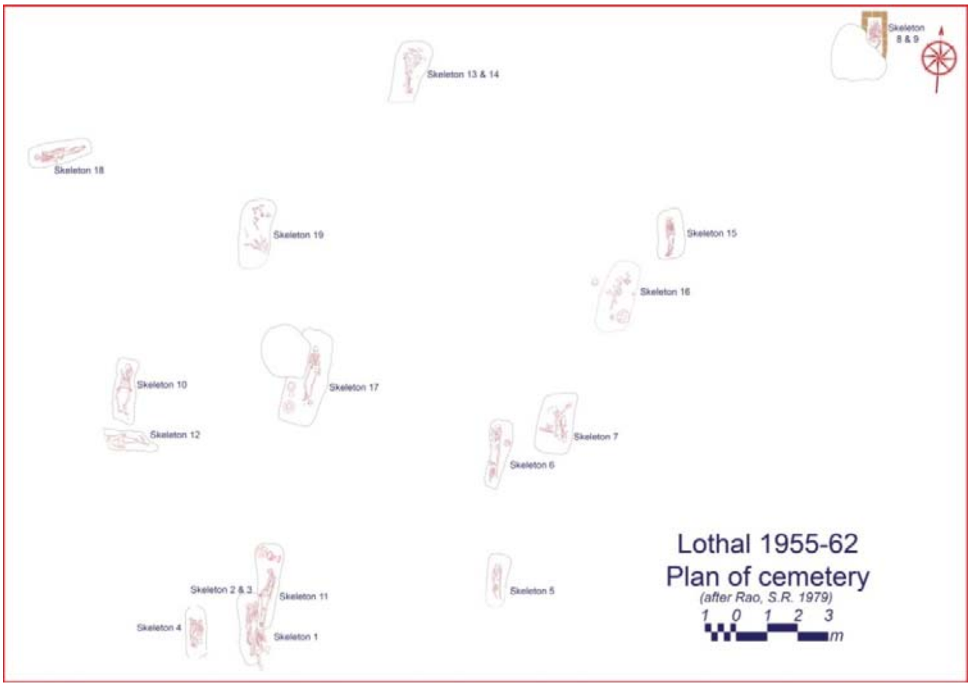


Fig. 4.261: Layout of the burial finds from cemetery, Lothal

The burial pits are normally 45.74 cm to 60.96 cm deep, 60.96 cm to 76.2 cm wide and 182.88 cm to 213.36 cm long. The orientation of the burials is in a north – south direction, with the head towards the north, slightly raised and tilted towards the east, while the legs and hands are pressed.[446] The most common burial practice noticed at Lothal is that of extended burial while no substantial evidence for fractional burials was encountered.[447] The arms are found pressed on each other, while the body was laid down in supine position. In some cases, the hands were placed on the side. In the case of legs, they were found placed in a slightly flexed condition sideways and placed apart, while the feet were touching each other.[448] The excavator attributes the important contribution from Lothal to the evidence of joint burials, of which three such instances were excavated.[449] The Grave 7 yielded a joint burial which is also lined with mud-bricks, contains a joint burial of two adult male individuals with "familial resemblance" between them.[450] It was also observed that before laying the dead body in the burial pit, some sort of ritual was performed by putting a thin layer of *kankar* on the floor of the burial pit, and then the funerary vessels and skeleton were deposited.[451] After the placement of dead body along with the burial goods, the grave pit was again filled with *kankar* and then by earth. In some cases, the piled up earth rose above the ground level.

Normally, all the graves were without any lining inside the grave pit, with only one exception in which mud-bricks were used for lining inside the grave pit.[452] The other important finds that were found associated with the graves were that of bones of a goat (or sheep?) in Grave 13, and teeth of *Bos indicus* in Grave 6. One of the important variety of the burials found at Lothal was the joint burials, for which, at least three examples were excavated. Among the joint or double burials, the Grave 7 was well preserved and was lined with mud-bricks on its inside.[453] Both the skeletons were identified as males by the Anthropological Survey of India while another set of anthropologists identify at least four females from the Lothal cemetery, of which two were from the joint or double burials.[454]

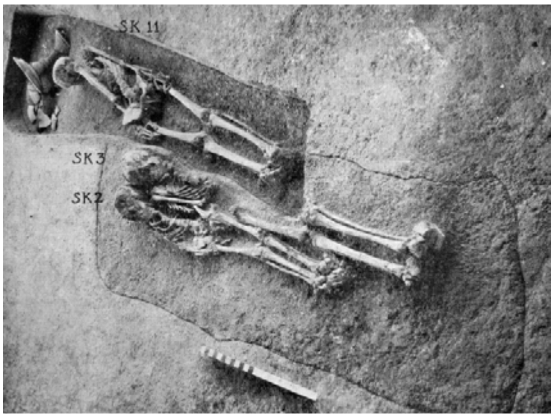


Fig. 4.262: Grave 2 Skeleton 2 & 3



Fig. 4.263: Grave 3 Skeleton 4



Fig. 4.264: Grave 4 Skeleton 5



Fig. 4.265: Grave 5 Skeleton 6

The burial goods are generally poor in nature and the maximum number of pottery found in a grave is five only. Apart from the pottery finds, the burials were also interred with ornaments such as copper ring and shell bangles. The excavator attributes the very meagre grave furniture at Lothal when compared to other Harappan sites of

Harappa, Kalibangan, Rupnagar, due to the ploughing and erosion of the graves. The pottery repertoire usually consisted of dish-on-stand with a carination, small jar with a low neck and bulbous body, and convex sided bowl, all of them in the typical Harappan black on red ware.[455]

The other pottery finds of a round bottomed jar with a flaring rim and bowl with a stud handle are in Micaceous Red Ware. The remnants of painted decorations on the pottery were poorly preserved. However, based on the available evidence, the motifs of wavy lines, intersecting loops, dots, fronds and horizontal bands could be discernible.[456]



Fig. 4.266: Grave 6 Skeleton 8 & 9

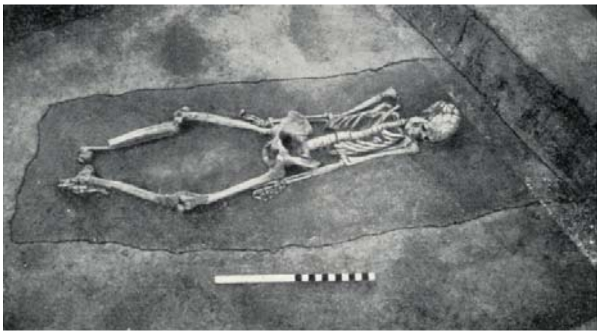


Fig. 4.267: Grave 8 Skeleton 10

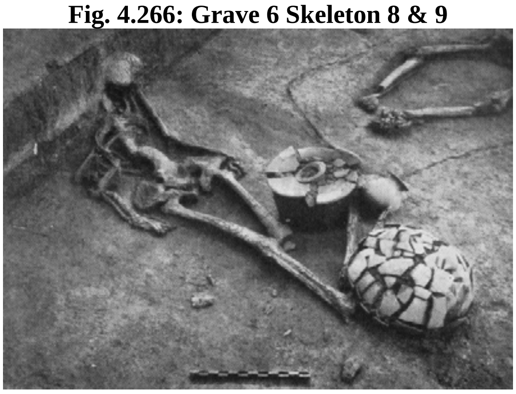


Fig. 4.268: Grave 10 Skeleton 12



Fig. 4.269: Grave 11 Skeleton 13 & 4



Fig. 4.270: Grave 12 Skeleton 15



Fig. 4.271: Grave 13 Skeleton 16



Fig. 4.272: Grave 14 Skeleton 17

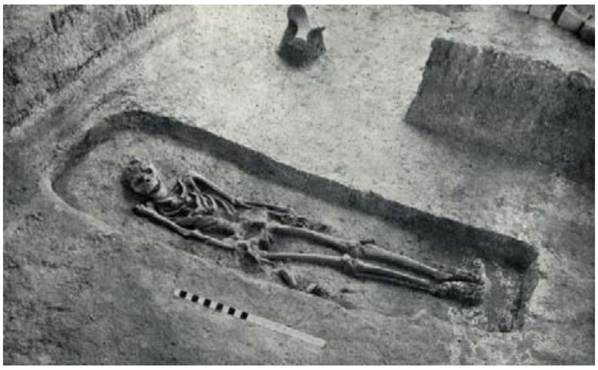


Fig. 4.273: Grave 15 Skeleton 18

The excavator also correlates the burial phases with the structural phases of the habitation area, through a series of six trenches connecting the cemetery area and the habitation area.[457] The sex determination of the Lothal skeletons by Anthropological Survey of India indicated a predominance of male skeletons. In all fifteen adult males, one adult, two young adults, a child and an infant skeleton were identified and the adults belonged to the age group of 20 – 22 years.[458] Sarkar, who carried out the anthropological analyses, remarked that the cemetery might not represent the true population at Lothal.[459] The analyses of the skeletons also brought to light chopping marks on them and also fractures of the skull and leg. Based on these evidences, it has also been concluded that the cause of death of these individuals may be due to violence. Another remarkable evidence from the skeletal remains is that of trephination of a skull belonging to a child aged about 9 – 10 years.[460] The studies carried out on this skull by Basu have concluded that:

> *"……it (beveling) might have been produced by some instrument before the skeleton bearing the specimen was buried. If we presume the latter statement, in the absence of signs of any bony repair, one would conclude that the person did not survive long after the cut was effected or that the cut was made post-mortem."*[461]

The ethnic studies carried out on the skeletal remains by the anthropologists lead to the following identifications:[462]

(1) Large and rugged, long-headed, having high cranial vault, strong brow ridges, and comparatively long and narrow face akin to the proto-nordic or caucasoid type of Harappa, Tepe Hissar III and Palmyra.

(2) *Medium-headed and smooth, having well-arched cranical contour associated with protruding occiput akin to the proto-Mediterranean or Mediterranean type of Harappa, Mohenjo-daro, Chanhu-daro and the Nippur skull of Baghdad.*

(3) *Broad-headed, having more or less vertical and flat occiput akin to Alpino-Aremenoid type of Harappa and Attai Telengete (Raichur).*

The excavator concludes thus based on the studies carried out by Chatterjee and Kumar:[463]

> *A close racial affinity between the Lothal skulls and those of Harappa and Mohenjo-daro (2500-1500 B.C.), Chanhu-daro (female), Adichchanallur (megalithic), Nal, Sialkot, Maski, Bayana, (Chalcolithic and Copper Age), Ur (2000-1000 B.C.), Pre-Dynastic Naqada (3200 B.C.) and Crete (3000-1500 B.C.).*

4.3.7 Surkotada

Surkotada (*23^0 37' N; 70^0 50' E*) is at a distance of 12 km northeast of Adesar and 160 km northeast of Bhuj in district Kachchh of Gujarat. The site was discovered by Jagat Pati Joshi in 1964 during the explorations in Kachchh area.[464] The habitational remains rise to a height of 5 – 8 m from the surrounding levels and measures 160 m (N – S) and 160 m (E – W) on the banks of a small *nala*, the latter might have been a river during the Harappan occupation here.[465] The excavation for two field seasons at Surkotada revealed a three sub-cultural periods within the Harappan occupation at the site datable from *circa* 2300 – 1700 BCE.[466]

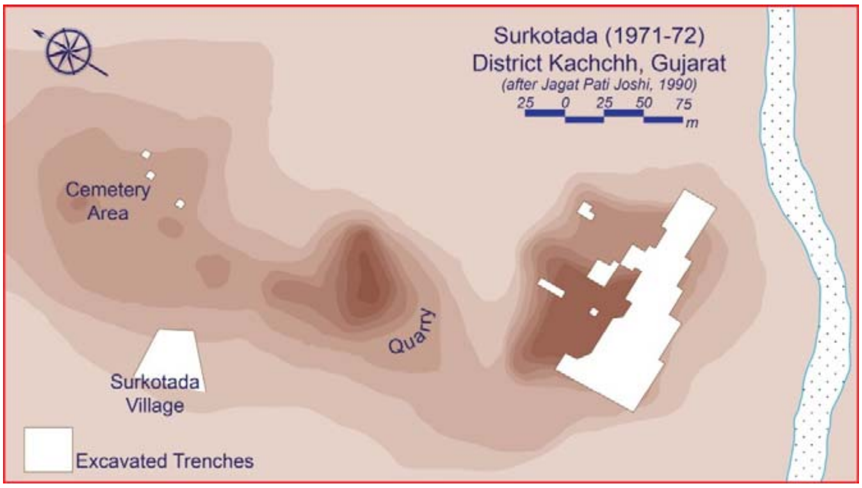


Fig. 4.274: Plan of Surkotada

The Harappan habitation is attested by the presence of a fortified citadel and residential annexe right from the earliest sub-period (IA) which was maintained in the succeeding sub-periods, i.e., IB and IC.[467] The pottery remains are represented by typical Harappan red ware, polytone cream slipped red ware, polychrome red slipped red ware, black painted red slipped red ware, deep burnt amber slipped red ware, coarse red ware, white painted black-and-red ware and reserve slipped ware.

The coarse red ware and white painted black-and-red ware make their appearance in the last two sub-periods along with the continuation of Harappan ware along with other traits like chert blades, weights, beads, terracotta cakes, cart frames, seals of steatite and terracotta, copper / bronze objects like blade, chisels, arrowhead, knives, drill, spearheads or lance heads with tang, lid, socketed axe, fishhook; stone objects like sling balls, querns, mace heads, whet stones and sharpeners, mullers and rubbers; terracotta objects like figurines, wheels, gamesmen, hopscotch, spindle whorls, spools, engravers, net sinkers, *tawa*; bangles of shell and terracotta.[468]

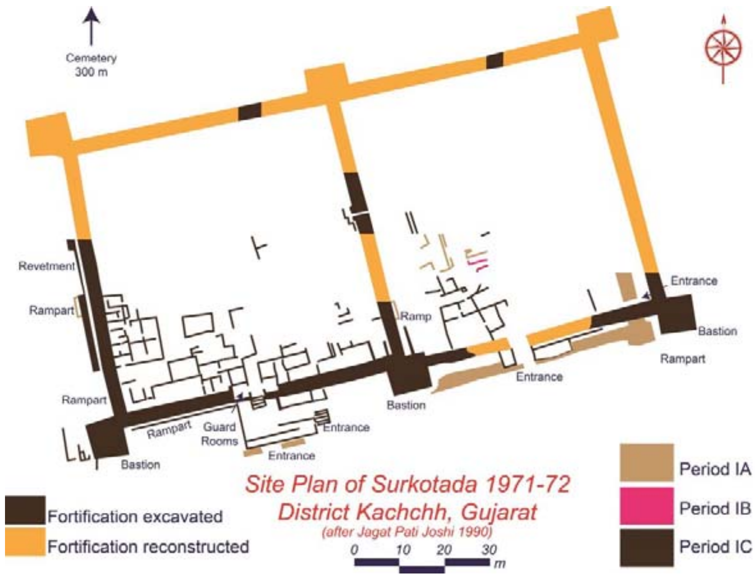


Fig. 4.275: Plan of excavated remains, Surkotada

The excavator further notes that the site was affected by a huge conflagration at the end of IB, which also saw the continuation of Harappan wares along with the coarse red ware. The cemetery area at Surkotada is located at a distance of nearly 300 m northwest of the habitation mound at an elevation, on a rocky terrain with small hillocks and scattered with lot of sand and low mounds.[469] As stated by the excavator, only a

limited area was excavated towards the end of the season, and hence only four graves were excavated. The cemetery area is scattered with low lying mounds, both ancient and modern, some of which contain burials. The excavator states that on a trial and error basis these low lying tumuli were probed which are otherwise disturbed too much due to various activities, both natural and man-made, brought to light the remains of burials. Thus, out of the six such tumuli were investigated, four revealed the presence of pot burials. It is also stated that due to the limited nature of excavation of the cemetery area other modes of burials, if any, could not be revealed here.[470] The characteristics of disposal of dead at Surkodata have been surmised by the excavator as follows:[471]

1. *Exclusively pot burial;*
2. *Post-exposure burial along with pottery;*
3. *Post-cremation burial along with pottery;*
4. *The feature of a horizontal slab on top of the pit;*
5. *Marking the grave with a vertical stone lying in the pit and putting a vertical slab on the western side along with the cairns, and*
6. *Cairns on the top.*

A raised heap of stones / cairns marks the surface of the burials, oval or oblong in one direction, along with the placing of either a vertical or horizontally placed stone slab. The burials are generally oriented in north – south direction. Two of the burials, viz., Burials 1 and 2 were marked on the surface by a heap of stones / cairns, with the former one marked by a vertical stone on the western side. After the removal of the surface indicators, an oval pit generally emerged. The oval plan of Burial 1 measured 1.48 X 2.02 (NS X EW), thus indicating its east – west orientation. Burial 2 is also oval on plan with measurements of 1.95 X 1.02 m in a SE – SW orientation. The other two burials, viz., Burials 3 and 4 are marked by the presence of elongated horizontal slabs on the surface.

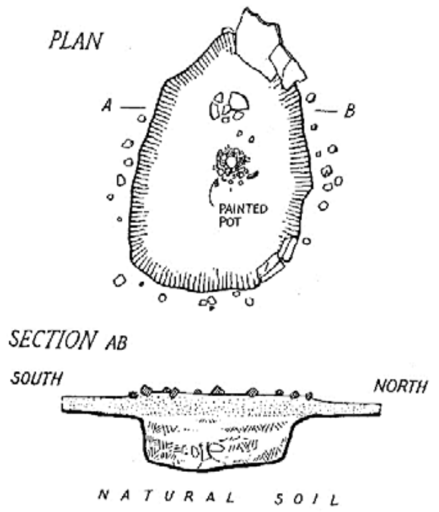


Fig. 4.276: Burial 1, Surkotada

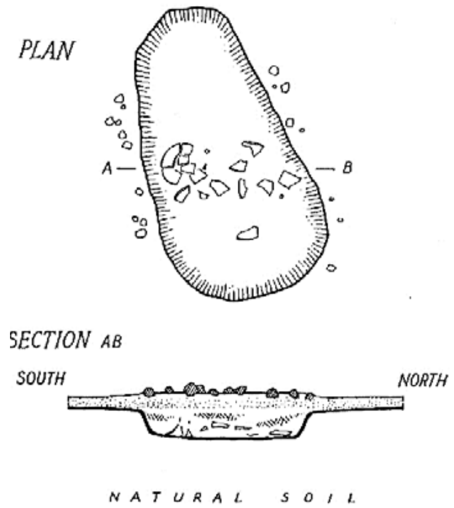


Fig. 4.277: Burial 2, Surkotada



Fig. 4.278: Burial 2, Surkotada

Burial 3 is marked by an elongated horizontal slab in north – south orientation measuring 1.68 X 0.98 m while that of Burial 4 measured 1.44 X 0.82 m. The contents of the pit varied from no skeletal remains to fragmentary bones to post-cremation symbolic burials. However, the burials presented good evidence of grave goods in the form of pottery dominated by the Harappan red ware followed by black on red ware and cream slipped ware with paintings. The Harappan pottery shapes represented in the burials include that of cylindrical vases or jars, vases, water pots, bowls, dishes, basins, beakers, dish-on-stands, bowl-on-stands, and globular pot. [472] The cemetery at

Surkotada is placed chronologically with the mature Harappan phase datable from *circa* 2300 – 2100 BCE.[473]

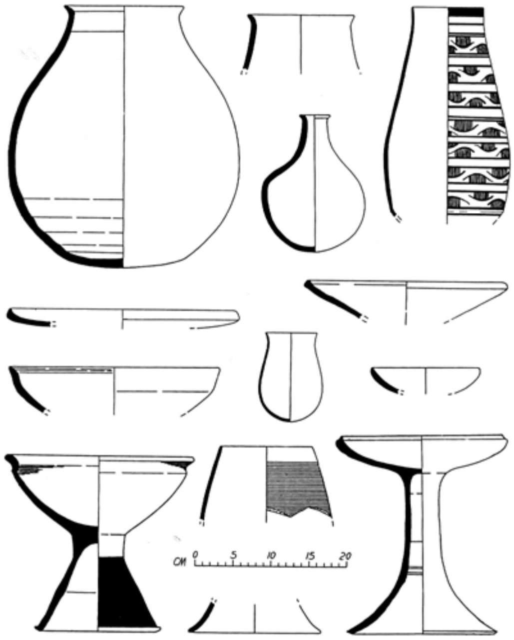


Fig. 4.279: Pottery from burials, Surkotada



Fig. 4.280: Burial 4, Surkotada

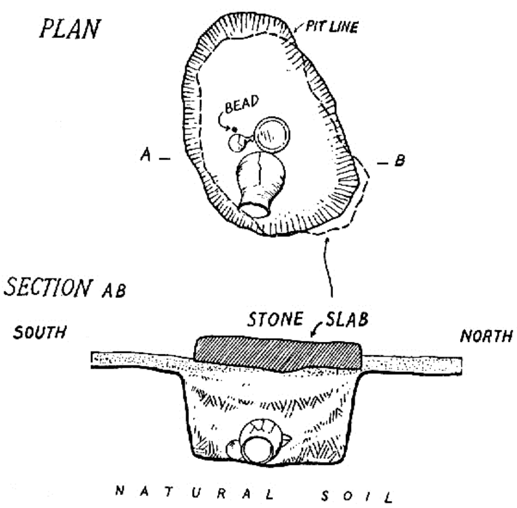


Fig. 4.281: Burial 3, Surkotada

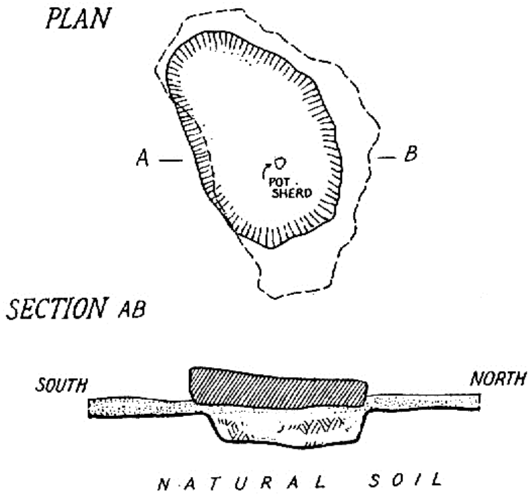


Fig. 4.282: Burial 4, Surkotada

4.3.8 Rupnagar

Rupnagar or Rupar (*30°57'59.04" N 76°31'59.16" E*) is a town in Rupnagar district of Punjab. The town was formerly known as Ropar. The ancient mound at Rupnagar rises to a height of nearly 21 metres from the surrounding plains and located on the left bank of River Sutlej. The site was excavated by Y.D. Sharma during 1953-54[474] and 1954-55[475] which has brought to light a six fold sequence of archaeological

cultures starting from the mature Harappan culture followed by Painted Grey Ware culture, Early Historic up to the modern period with breaks in between. The cemetery at Rupar is located at a distance of nearly 160 ft. to the west of the main habitation and the exact number of burials excavated is not mentioned.[476] The burials were found to be considerably damaged due to later period disturbances belonging to the Painted Grey Ware period. Hence many of the burials were found only in parts and some of them seemed to have been totally removed.[477] However, some burials were partially well preserved to have an idea of the nature of disposal of dead.

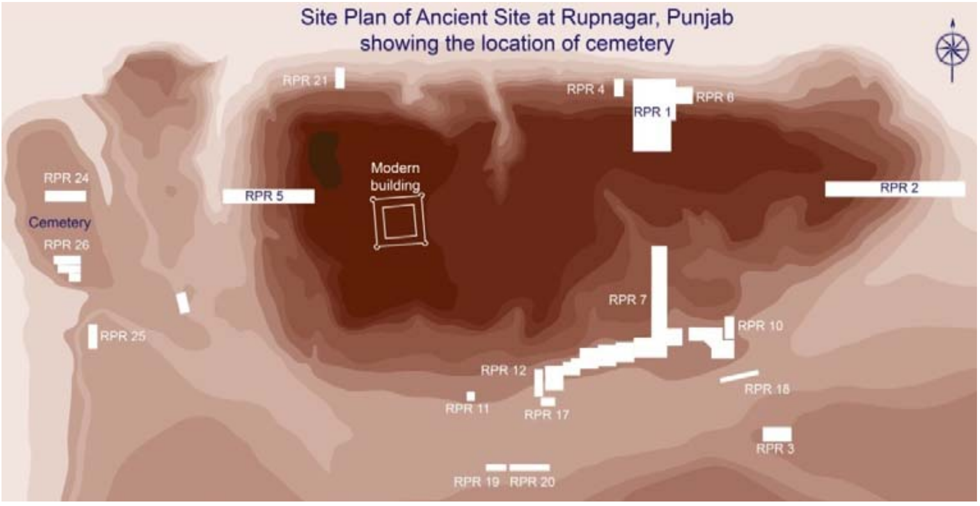


Fig. 4.283: Site plan of Rupnagar showing the location of cemetery

The dimensions of the grave-pits varied in size and on an average they measured as 8’ X 3’ and 2’ deep. The orientation of the burial is northwest to southeast, while one burial was in north – south orientation. The burials contained pottery as burial goods, found arranged at various locations in the grave-pit, viz., near the head, feet and on the sides of the body.[478]


Fig. 4.284: Extended Burial (before removing skeleton) Rupnagar


Fig. 4.285: Extended Burial (after removing skeleton) Rupnagar

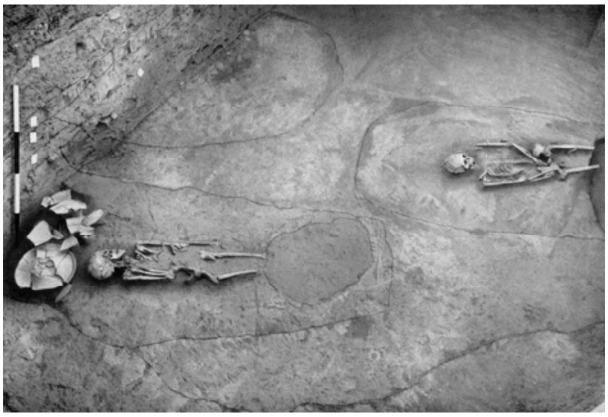


Fig. 4.286:Extended burials of Harappan period that have been disturbed by later period pits, Rupnagar

It has been observed by the excavator that normally the burial pots and the skeletons were arranged at the same level. However, only one burial showed an exception. Here, the burial pots were first arranged and then the grave-pit was partially filled with earth. Then the body was placed and then the pit was again filled. Due to the two stages of the filling, it was clearly observed that the arranged pots were found dislocated from their original location by the first filling of earth and hence were found below the body.[479] The burial pots also varied from burial to burial in the range from two to twenty-six. The other burial goods discovered were personal ornaments like bangles of faience and shell, a copper ring and some beads. The beads were reported to be found loose and not in their original position. The faience bangle was found on the left wrist of a skeleton, while the copper ring was found in the central finger of the right hand of another skeleton.

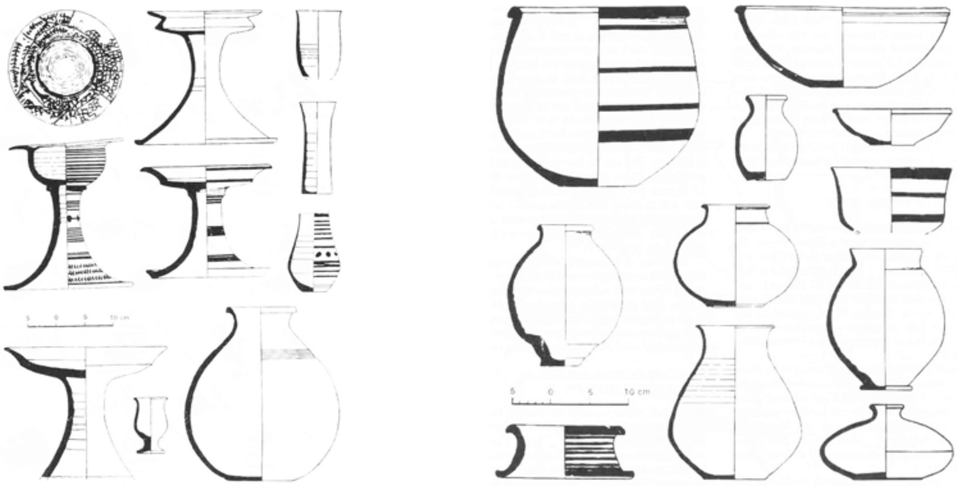


Fig. 4.287: Pottery from burials, Rupnagar

4.3.9 Chandigarh

The construction activities in Sector 17 of Chandigarh brought to light the remains of a Harappan cemetery (*30°44'16.77" N; 76°47'5.08" E*) and later a habitation site (*30°44'19.70" N; 76°47'9.80" E*) at a distance of 100 m east-northeast of the cemetery site. The chance discovery of burial remains was made in 1969 during the construction of a multi-storied building and a salvage operation by University of Punjab brought to light the remains of a Harappan cemetery.[480] The burials were found below an alluvial deposit of nearly 1.5 m, which also prevented any large-scale analysis of the surroundings. Subsequently, another construction activity for an underground parking area brought to light the remains of habitation area, and the Archaeological Survey of India and Department of Archaeology and Museums, Government of Punjab carried out a salvage operation.[481]

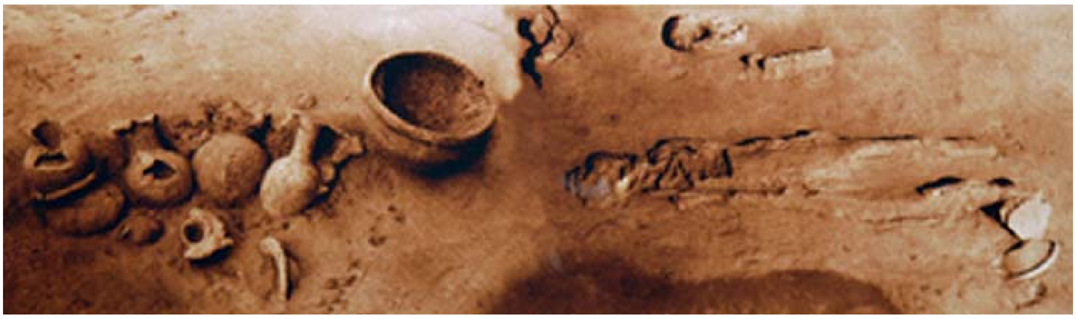


Fig. 4.288: Burial remains from Chandigarh

The Chandigarh Circle of the Archaeological Survey of India further excavated a few trial trenches during 1985-86.[482]The excavations during 1970-71 and subsequently 1985-86 brought to light a deposit of 1.5 m below a 1.5 m of silt deposit. The habitation deposit is further classified into sub-periods IA and IB.[483] The Period IA is of Harappan period, characterised by the presence of jars, dish-on-stand, cup-on-stand, pointed goblets, button base goblets, storage jars, vases, bowls, ring stand, a funnel shaped vessel bearing an inscription in Harappan characters and artefacts like terracotta bull figurines, beads, bangles, toy-cart frames, wheels, spindle whorls, dabbers, balls; faience and copper bangles; beads of paste and agate and stone querns, pestles and sling balls.[484] The Period IB is represented by the presence of Bara pottery with incised designs like parallel, vertical and horizontal lines, nail marks, notched and incised mat design.[485]

The remains of five burials were brought to light by the Department of History, University of Chandigarh. Among the five burials, one was of flexed burial, while the remaining ones are the usual extended burials.[486]The burials exhibit the arrangement of skeleton in north – south orientation with placing of funeral goods like pottery near the head. The funeral goods consisted of plenty of plain and painted pottery.[487]

4.3.10 Farmana

Farmana (*29^0 2‘ 22” N; 76^0 18’ 21” E*), locally known as Daksh Kheda, is located near the villages of Farmana, Semen and Bhaini Chandrapal (Badi Bahen) 45 km from the district Rohtak, Haryana. The site was discovered by Suraj Bhan and he first identified the remains of Early Siswal period here.[488] The investigations by Surinder Singh, Vivek Dangi and Manmohan Kumar have revealed that the site was spread over at least 250 m X 250 m containing the remains of pottery belonging to Early Harappan, Harappan, PGW and Early Historical Period.[489] The present site lies in the midst of fertile agricultural fields and lakes in the Chautang river basin, the latter, 30 km away from Farmana.[490] The ruins of the Harappan site is spread over 18 ha and intensively occupied, thus making it the second largest site in Haryana, after Rakhigarhi.[491]

The excavators have identified an intact central region measuring nearly 80 m X 60 m, while the peripheral area completely levelled up to the natural level by the farmers and local villagers for agricultural purposes.[492] The geomorphological investigations around the site have brought to light that the climate during Harappan occupation was wet and also presence of a river nearby.[493] The excavations at Farmana[494] have brought to light the following cultural sequence:

Period I	Early Harappan (Regional Hakra Culture Traditions (3500-2600 BC)
Period II	Mature Harappan (Sub-divided into three phases of occupations)

The cultural economy during the Early Harappan period consisted of pit dwellings with superstructures, pottery assemblage with mud applique, incised, chocolate slipped, reserve slipped, grooved, etc., copper and lapidary crafts.

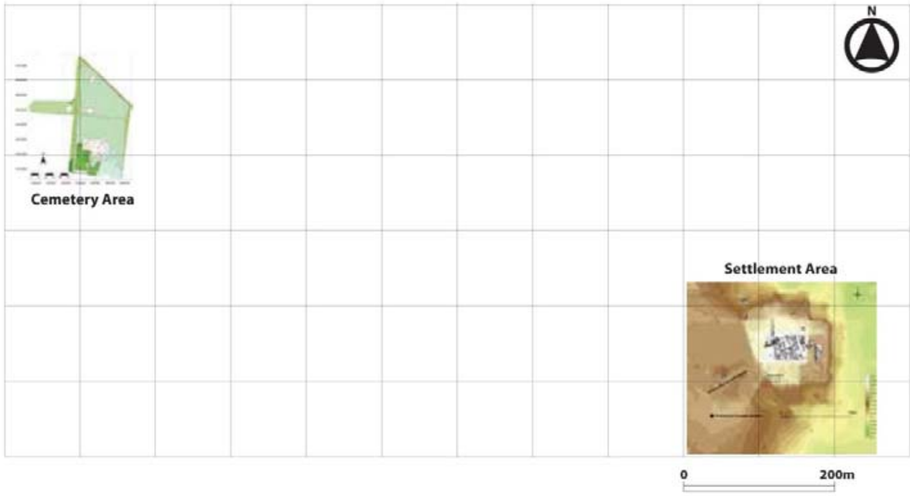


Fig. 4.289: Location of cemetery complex, Farmana (after Shinde, V. *et. al*, 2011)

The remains of Harappan period consist of well-planned and burnt-brick structural complexes, streets, rectangular fire places, storage areas; gradual evolution of structural complexes from subterranean circular or oblong structure to rectangular structures; typical Harappan Red Ware, seals and sealings, terracotta bangles, beads of faience, steatite, plain and etched carnelian, agate, paste, shell and terracotta, terracotta animal figurines, copper fragments, bone tools, large number of terracotta cakes, mushtica, grinding stones, etc.[495]

The cemetery site at Farmana is located nearly 900 m to the northwest of the habitation mound, which was also accidentally discovered in 2007-08 when the local farmers were removing a large portion of soil with mechanised means.[496] The extent of the cemetery site at Farmana has been estimated to around 3 ha and had survived more or less fully which has led the excavators to plan a large-scale excavation to expose them. The location of the cemetery complex to the west of the habitational remains more or less confirms to the general practice of the Harappan settlements.

The investigations revealed that the burials pits were dug into the natural alluvium mostly brownish / yellowish in colour and the pit refill soil later turned into greyish / blackish in colour, which facilitated the easy identification of each burial pit location.[497] A total of 70 burials were excavated within an area of 35 m X 21 m. The excavation of the also burials reveal the varying depths of burial pits, which vary from very close to the present surface to nearly 1 m.[498]

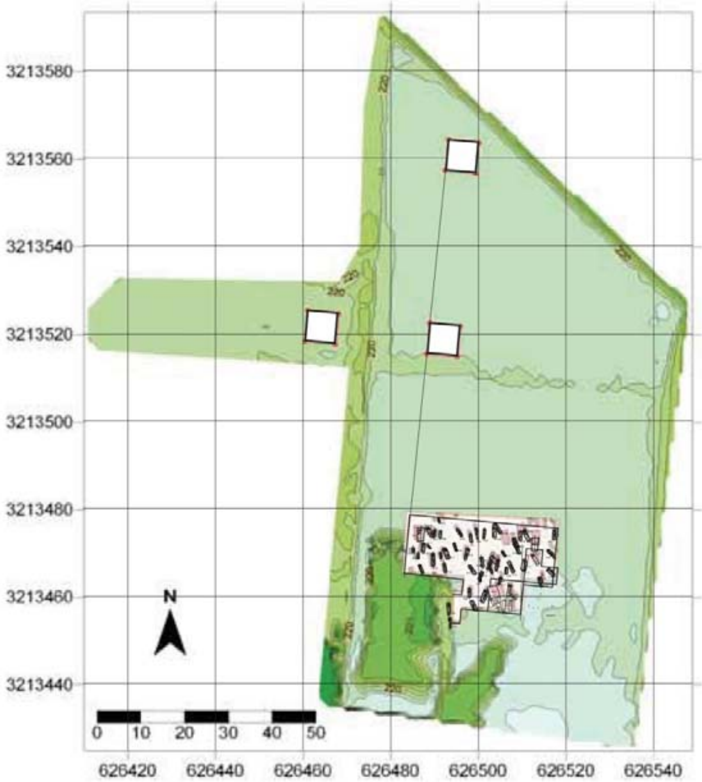


Fig. 4.290: Plan of the cemetery complex, Farmana (after Shinde, V. *et. al*, 2011)

The excavations also brought to light different orientations of internment of skeletal remains and burial goods. The orientations noticed among the burials are northwest – southeast, north – south and northeast – southwest. The excavators have also identified three distinct phases of Harappan culture and chronological sequence in the burials based on the pottery and burial goods interned which are as follows:[499]

Chronological sequence of the burials from the Farmana cemetery

Period IIA	Early Mature Harappan	*More early Harappan pots, including Kot Diji types, with round bodies, flat-based rimless or those with very little rim.*
Period IIB	Middle Mature Harappan	*Few Kot Diji type pots, a few typical Harappan and those of local pot types.*
Period IIC	Late Mature Harappan	*Non-Kot Diji type pots, only typical Harappan pots along with local pots. Percentage of Harappan to local pots is 50% - 50% Comparable to Cemetery R-37 types found at Harappa.*

Further, the burials found at Farmana have been categorised on the following types based on the skeletal and burial goods:[500]

Primary Burials	*Deceased placed in a pit in a supine position, with head towards the north.* *Contains full skeleton.*
Secondary Burials	*Only few bones are found. The bodies could have been kept in open for some time, and the remaining bones collected and interred symbolically.*
Symbolic Burials	*Devoid of any skeletal remains, but contain pottery and burial goods such as ornaments. Body might not have been found available and only a symbolic burial erected in the memory of deceased.*

All the burials are invariably found with the evidence of a burial pit, rectangular in shape, and as described by the excavators they are, *"…….rectangular in shape with their sides cut perfectly vertical and bottoms flat."*[501]

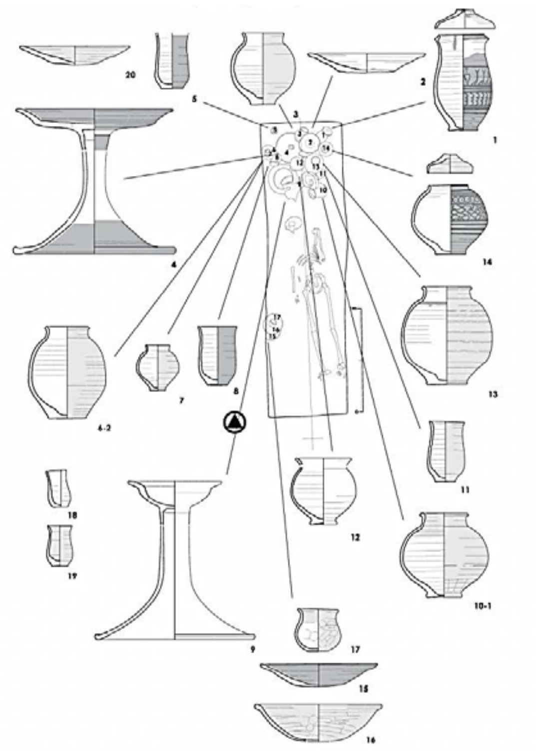


Fig. 4.291 :General arrangement of the body and burial furniture and goods in a primary burial (Burial 32), Period IIA, Farmana



Fig. 4.292: Burial 32



Fig. 4.293: Placement of Burial Furniture in Burial 32, Farmana

The typical Harappan pottery types found from the burials are pots, jars, bowls, beakers, dishes, dish-on-stands, bowl-on-stands, pot-on-stands, stands. The typical non-Harappan pottery types are pots, jars, bowls, beakers, dishes, dish-on-stands, pedestalled bowls, pot-on-stands and lids. The most common type of pottery that was interred in the burials is of pots and bowls in both Harappan and non-Harappan categories. The excavators have further concluded that four phases can be identified based on the sequential order of burial pottery and this is useful in arranging them in a chronological sequence.[502] Three burials are placed in ***Phase I*** which are distinguished by the absence of non-Harappan pottery and characterised by only a fewer identifiable Harappan pottery types like pots, beakers, dish-on-stand and bowl-on-stand.

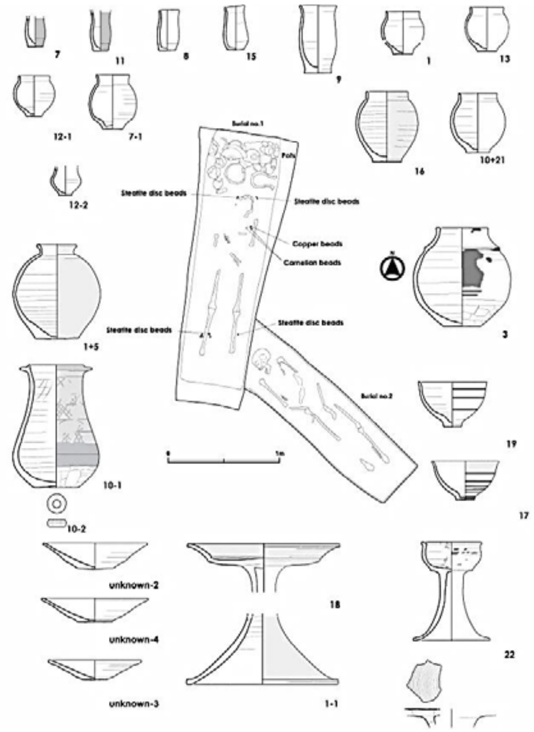




Fig. 4.295: Burials 1 & 2



Fig. 4.294 :General arrangement of the body and burial furniture and goods in a primary burial (Burials 1 & 2) Period IIB, Farmana

Fig. 4.296: Placement of Burial Furniture in Burial 1, Farmana

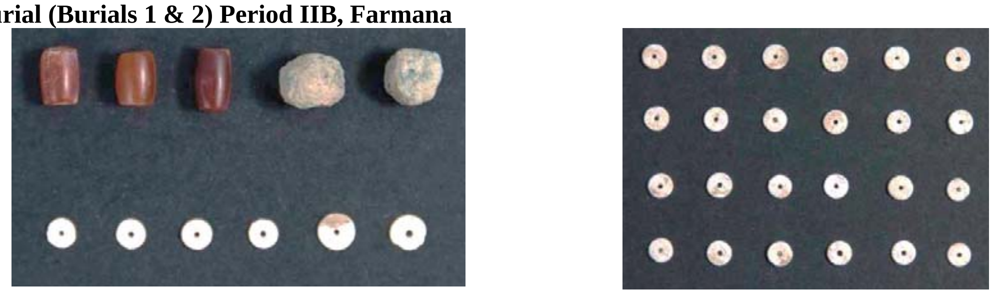


Fig. 4.297: Carnelian and Steatite Beads from Burial 1, Farmana

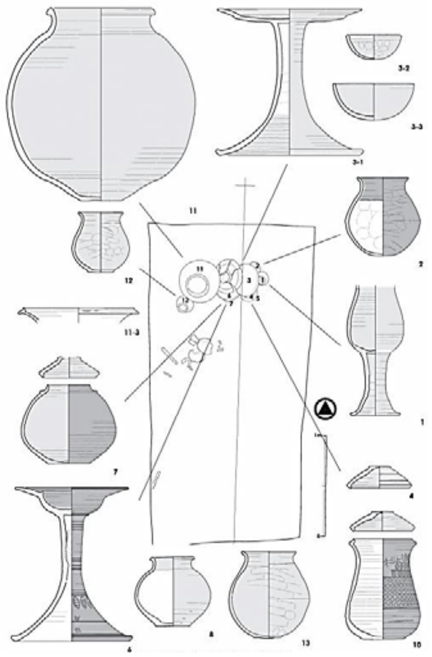




Fig. 4.299: Burial 39



Fig. 4.298 :General arrangement of the body and burial furniture and goods in a secondary burial (Burial 39) Period IIB, Farmana

Fig. 4.300: Placement of Burial Furniture in Burial 39, Farmana

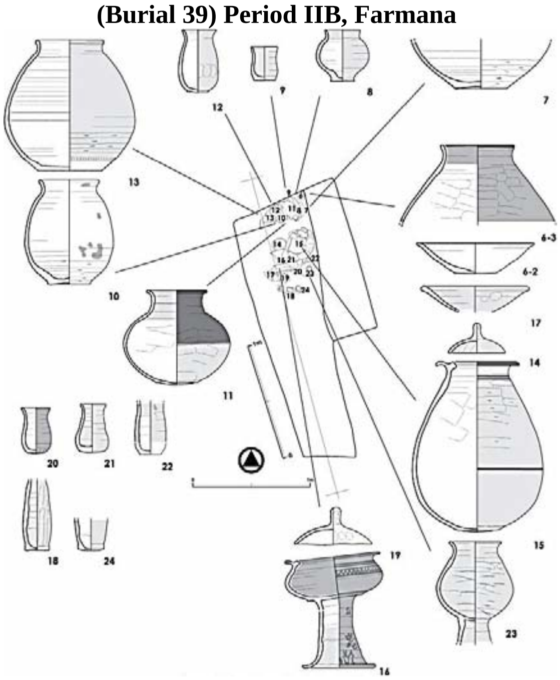




Fig. 4.302: Burial 12



Fig. 4.301: General arrangement of the body and burial furniture and goods in a symbolic burial (Burial 12), Period IIB, Farmana

Fig. 4.303: Placement of Burial Furniture in Burial 12, Farmana



Fig. 4.304: Personal ornaments from Burial 12, Farmana



Fig. 4.305: Representative Harappan pottery types from burials, Farmana



Fig. 4.306: Representative non-Harappan pottery types from burials, Farmana

The ***Phase II*** burials are characterised by the continuation of Harappan pottery types, with the introduction of a variety of bowl-on-stand and dish-on-stand with the rim of pedestal out-curved.[503] The non-Harappan pottery types also enter in the burial furniture repertoire and are represented by the beaker, dish, bowl, pot-on-stands, pedestalled bowl, and dish-on-stands and also supplemented by imitation of some Harappan pottery types like flanged pot, dish-on-stand and dish.[504] During the ***Phase***

III, the general Harappan pottery assemblage is same when compared to Phase II except with the introduction of a new pot type and a new slender type of beakers and no exceptional change is noticeable in the non-Harappan pottery assemblage.[505] The **Phase IV** assemblage of both Harappan and non-Harappan pottery shows an inclination towards tall and slender body shapes along with the continuation of already existing styles while the shapes of bowl, dish and beaker shows no marked change.[506]



Fig. 4.307: Plan showing different phases of burials, Farmana

4.3.11 Hulas

Hulas (29^0 42' 16" N; 77^0 21' 38" E) is located 8 km west of Nanauta, the latter on the Delhi – Saharanpur road in district Saharanpur. The site was reported to have been discovered by V.K. Tewari of ASI during a village to village survey in 1965-66.[507] The site was excavated by K.N. Dikshit of the ASI for five field seasons starting from 1978-79 to 1982-83. The excavation brought to light a five-fold cultural sequence, viz., Period I – Harappan Culture, Period II – Painted Grey Ware Culture, Period III – Northern Black Polished Ware Culture, Period IV – Sungha – Kushana Red Ware Culture and Period V by Gupta and Early Medieval Wares.[508] The ancient site at Hulas raises to a height of nearly 5 m from the surrounding plains and measures 330 m (N – S) and 172 m (E – W).

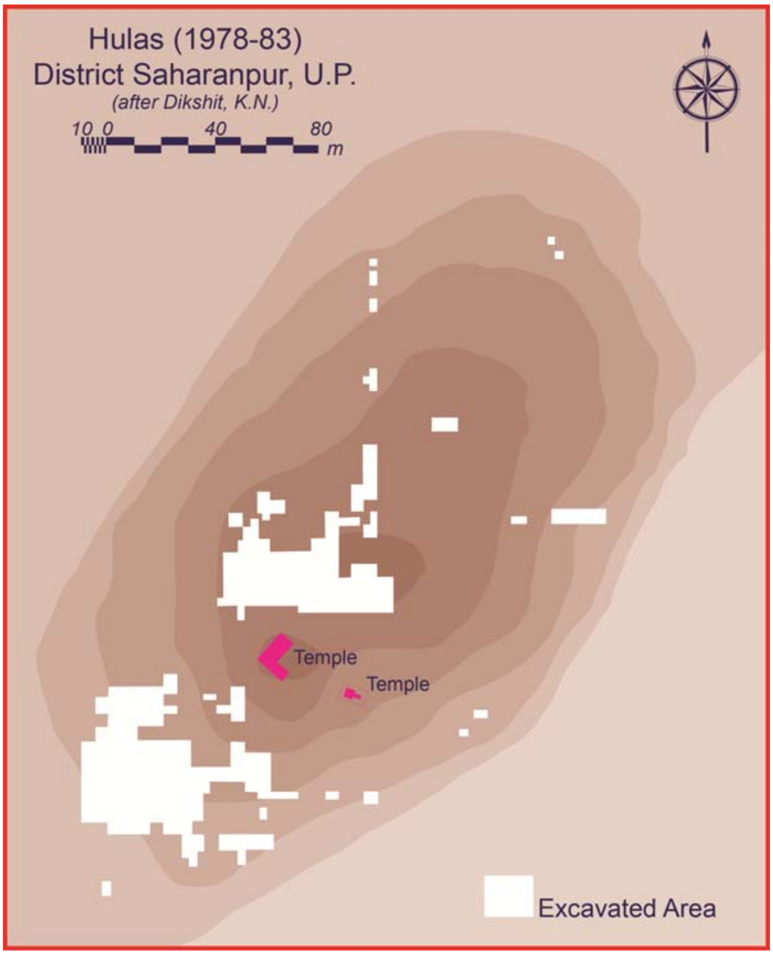


Fig. 4.308: Site plan showing the excavation area, Hulas

The period I represented by the Harappan culture yielded the typical Harappan painted ware along with 'non-Harappan' wares from a cultural deposit of 1.8 m.[509] The non-Harappan pottery, a type of coarse red ware has been reported from the lowest levels at Hulas, and later on from the middle levels the Harappan pottery dominated.[510] Period I is also characterised by five structural phases divided into three sub-phases with 43 identified structural phases, five belonging to earliest phase, 32 to middle phase and 6 to the last phase.[511] A large mud-brick structure was found from this period in an area measuring 46 X 35 m, which was raised in two stages, probably as a protective wall from the rising floods.[512] This settlement was separated from the later period settlement belonging to the PGW culture by a large ditch nearly 0.90 to 1.2 m deep, which was encountered at a depth of 4.3 m at the centre of the mound.[513]The other findings from this period are kiln-burnt bricks with three finger marks along with a dish-on-stand from

a hearth, two circular hearths, evidence of mud-brick houses and circular huts with reed-impressed plates.[514] The ceramic industry consists of the typical Harappan types along with new ones like *"…….dish-on-stand with a drooping rim, jar with horizontally splayed out rim, medium-sized jar with everted rim, bowl-like lid with central knob and a few miniature pots with a ring or pedestalled base.."*.[515] The artefacts found from this period include that of *"….terracotta objects, bead and bangles, animal figurines and cart-wheel with raised central hub, faience beads, bangles and pots; beads of agate; fragmentary copper bangles; bone points and stone querns and pestles…..terracotta cakes oval in shape with pointed ends…"*.[516] The other prominent finds include that of few potsherds with impressions of rice husk that have been identified and having common characteristics between the cultivated variety of *Oriza sativa* and the wild variety of *Oriza rufipogon*.[517]

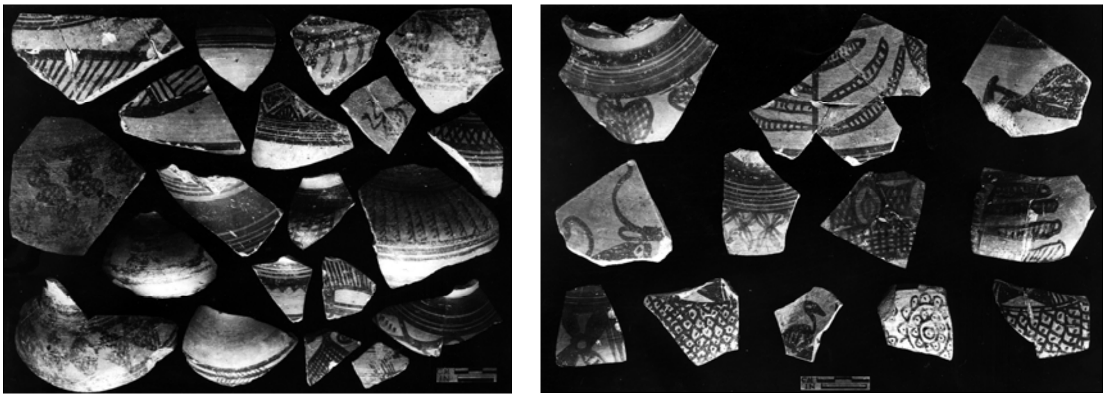


Fig. 4.309: Painted pottery from Period I, Hulas

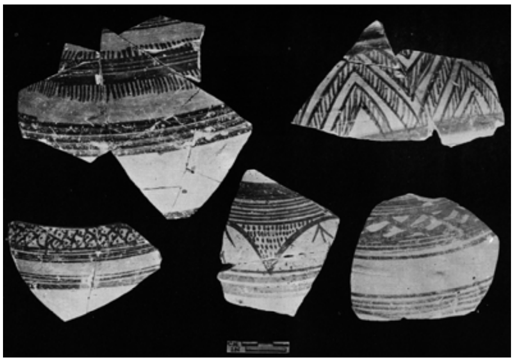




Fig. 4.310: Painted pottery from Period I, Hulas (left);
Fig. 4.311: General view of circular huts, Period I, Hulas (right)

Among the structural remains of Period I, are a series of circular circular huts, numbering sixteen were brought to light during the excavations in 1982-83.[518] These

circular huts varied in sizes ranging from 1.4 to 2.2 m and constructed of wattle and daub. It is in connection with one of these circular huts that a row of seven miniature pots with lids along with a few more *in situ* was brought to light.[519] Even though there is no reported burial finds from the excavation of Hulas, the finding of a row of pots indicate a possibility of a burial at this site due to the similar nature of placing of pottery as burial goods from Sanauli. The evidence from Sanauli indicate that a row of pots is invariably placed near the head portion of the burial.

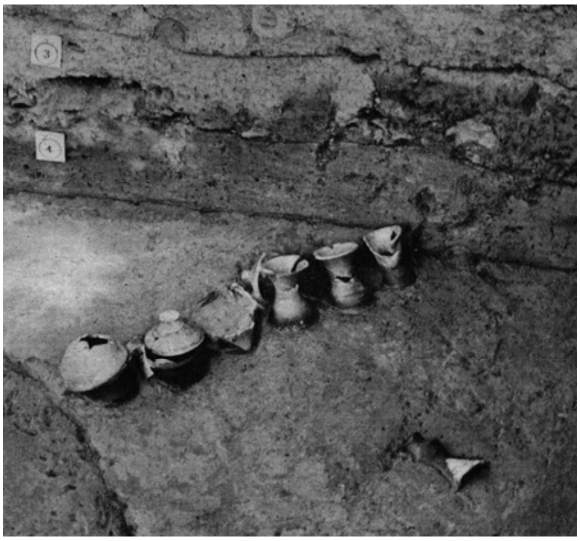


Fig. 4.312: Row of pots *in situ*, Hulas

4.3.12 Randal Dadwa

The exploration carried out by P.P. Pandya of the Department of Archaeology, Government of Bombay during 1958-59 in the then district of Madhya Saurashtra brought to light twelve Harappan sites.[520] The general characteristics of the Harappan sites are reported as *"….convex-sided bowl, handled bowl, dish with flared rim, dish-on-stand, square-rimmed jar and perforated jar…..red and buff wares were present….painted designs consisted of roundels, wavy lines, hatched triangles, intersecting loops, leaves, etc."*[521] The exploration also brought to light a Harappan cemetery near Randal Dadwa. The excavation carried out here in one of the burials brought to light features of an extended burial, with the remains of a skeleton, the head found resting on a dressed stone. The findings from the grave included Harappan bowls and dishes.[522]

4.3.13 Chanhu-daro

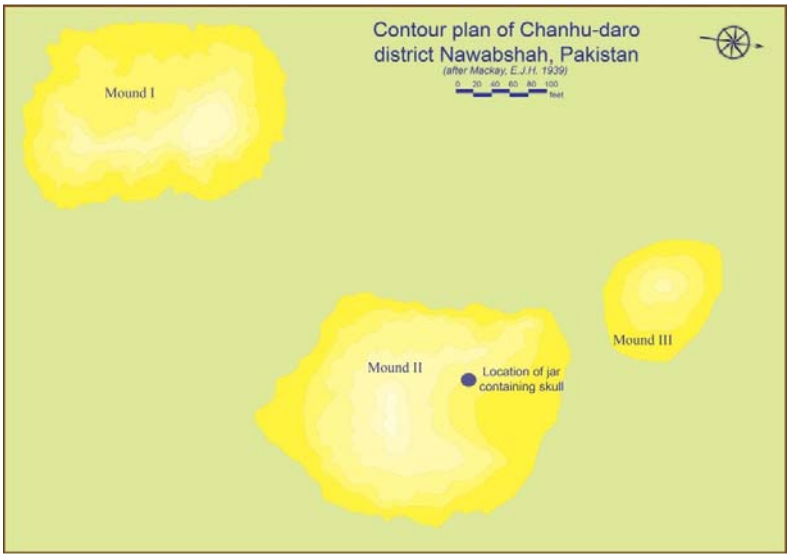


Fig. 4.313: Contour plan of Chanhu-daro and find spot of jar containing skull

Chanhu-daro (*26° 10′ 23.19″ N; 68° 19′ 22.31″ E*) is located in district Nawabshah in Sindh province of Pakistan. E.J.H. Mackay excavated Chanhu-daro during 1938-39 and three cultural occupations levels were unearthed from here, consisting of Harappa Occupation, Jhukar Culture and Jhangar Culture.[523] Chanhu-daro is located at a distance of 19.3 km to the east the present course of River Indus and it is estimated that a branch of River Indus flowed very close to the site during the third millennium BCE. Mackay also observes that due to the availability of freshwater near the site, Chanhu-daro was an important centre of trade through land and sea and also owing to its proximity to the passes of Kirthar Range of Baluchistan.[524]



Fig. 4.314: General view of the mound, Chanhu-daro



Fig. 4.315: General view of the mound, Chanhu-daro

The excavation in Square 7/E loc. 324 in Mound II brought to light the remains of a large storage jar originally could have served to drain the floor of a *"well-conditioned pavement of two courses of brick….of a bathroom in the house beyond to the west."*[525] Inside the storage jar was found the remains of *"…a human skull, a large shell, a copper or bronze ring, and a few implement of copper or bronze, some of which were broken."*[526]The skull was found at a depth of 2.8 m above the datum level. The excavator himself could not ascertain the context and purpose of the above finds in a jar. The anthropological analysis of the skull by W.M. Krogman and W.H. Sassaman concluded that the skull belonged to an adult female of 22 – 25 years in age.[527] It has been further stated that the skull was placed in the jar "sometime after death."[528] However, the nature, purpose and interment of only skull portion without the remaining skeletal portions could not be firmly established by the excavators and the anthropological analysis.

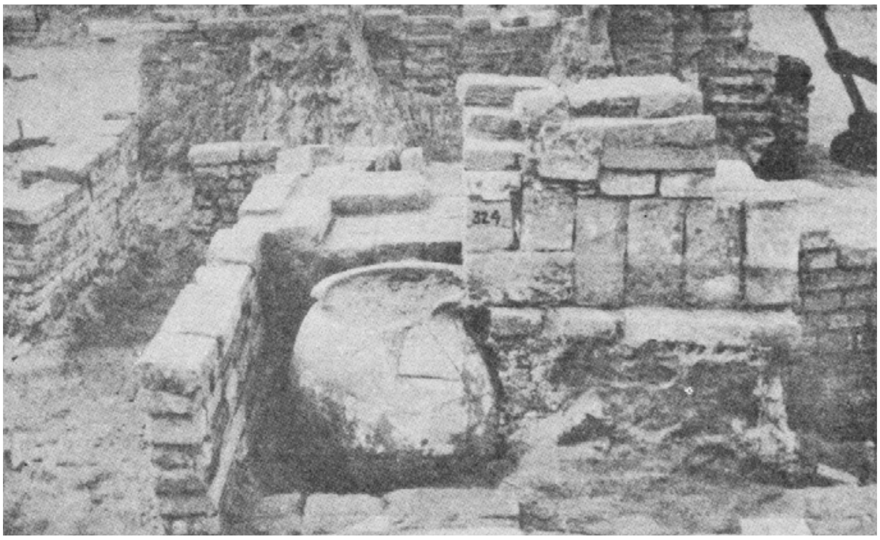


Fig. 4.316: Jar containing skull, shell and copper / bronze implement, Chanhu-daro

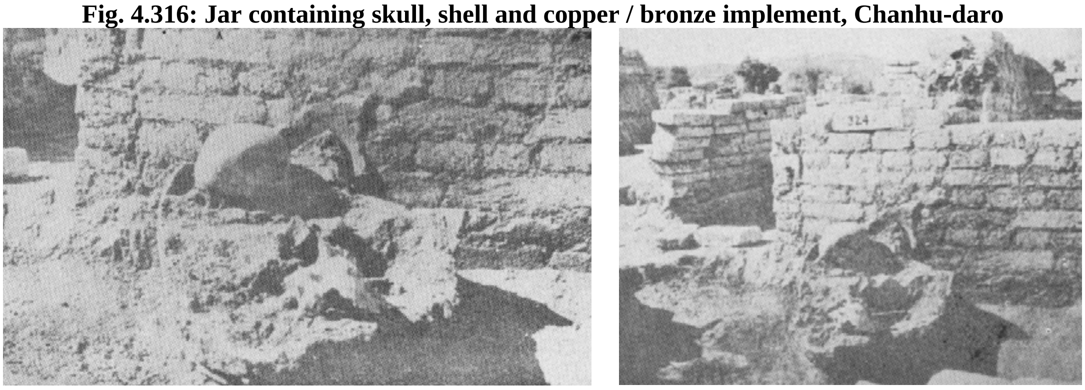


Fig. 4.317: View of the jar after partially opened, Chanhu-daro

4.3.14 Periano-ghundai

Periano-ghundai (31°21'16.60" N; 69°23'30.28" E) is located in district Zhob of Baluchistan. The site is located nearly 5.6 km to the west of Zhob and 10 km northeast of Moghul-ghundai. The site is located at a distance of 1 km to the east of right bank of River Zhob and on the left bank of a seasonal flood bed known as Saliaza. The mound at Periano-ghundai as reported by Stein is 457 X 320 (EW – NS) and rises to a height of 21.3 m from the river level.[529] F. Noetling of Indian Geological Survey first noticed the remains in 1928 who brought to light the evidences of settlement containing ashes, bones and decomposed refuse along with a large quantity of pottery.[530]

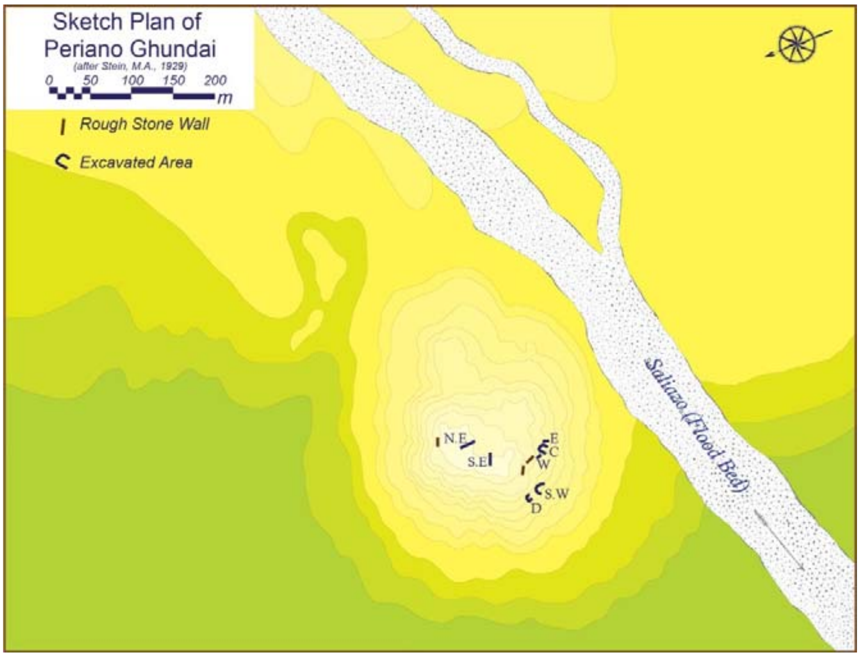


Fig. 4.318: Sketch plan of Periano-ghundai

Stein excavated nearly six trenches at the site during 1927, which are shown in the Fig. 4. Fairservis (Jr.) re-studied the excavated remains from the site and has noted that two distinct phases could be delineated from the excavations of Stein based on stratigraphy consisting of Phase I (lower) and Phase II (upper). The latest of them has been termed as *"….Incinerary Pot Burial Phase…..characterised by burials of disarticulated human bones and ashes in rather rough vessels of three types."*[531]The earliest phase if called as "Zhob Cult Phase" by Fairservis (Jr.), which is characterised by the typical Zhob female figurines along with bull figurines.[532]S.P. Gupta dates the

Phase II to around 2500 BCE based on the findings by Stein and rough estimation of depths.[533]



Fig. 4.319: General view of mound, Periano-ghundai



Fig. 4.320: General view of mound, Periano-ghundai



Fig. 4.321: Mud bricks and fortification, Periano-ghundai



Fig. 4.322: General view of mound, Periano-ghundai



Fig. 4.323: Close-up view of mud-bricks, Periano-ghundai

Stein reports the evidence of post-cremation urn type burials from the excavation in Trench P.E on the southern slope of the mound. The burials were found from two contexts, viz., southern end of Trench E and southwestern corner of a room in SW area. The evidence consisted of at least four instances of pots, which contained small fragments of human bones mixed with ashes. One of the pots contained fragments of animal bones and pottery debris along with the normal contents. Stein, based on the evidence, opines that the occupants practised the custom of post-cremation burials, which were interred approximately corresponding to the level of occupation.[534]

Fairservis (Jr), based on the evidence surmises that the burials were in the floors of the houses.[535]Fairservis (Jr.) notices the presence of two pottery types in both the phases, viz., Periano Wet Ware which evolved directly from Quetta Wet Ware and Periano Reserve Slip Ware.[536]



Fig. 4.324: Cinerary pot in Trench P. SW 9, Periano-ghundai



Fig. 4.325: Cinerary pot in Trench E, Periano-ghundai

4.3.15 Moghul-ghundai

Moghul-ghundai (31° 17' 6.93" N; 69° 19' 14" E) is located on the left bank of River Zhob in district Zhob of Baluchistan. The site is located at a distance of 10 km southwest of Periano-ghundai and 14.5 km southwest of Zhob. The site was investigation by Stein during his tour of Waziristan and northern Baluchistan in 1927. Stein describes Moghul-ghundai as a small mound measuring 82.3 X 68.5 m (NS – EW) rising to a height of 6.7 m above the surrounding levels. Stein excavated two broad trenches on the eastern side of the mound. The structural remains consisted of irregular course of undressed stones identified as foundations for mud-brick walls of the habitational remains. The pottery remains consisted of abundance of painted pottery comparable with the Periano-ghundai remains. The painted pottery is also characterised by black colour motifs executed over a dark red ground colour. The remains from this site are compared with that of Periano-ghundai and Stein pointed out many similarities.[537]



Fig. 4.326: General view of the mound, Moghul-ghundai



Fig. 4.327: General view of the mound, Moghul-ghundai

The remains of burials very similar to those of Periano-ghundai were unearthed from the north trench at a depth of 1.1 m from the ground level. A large jar was found near a stone foundation of a mud-brick wall, which contained the remains of fragmentary calcined human bones, including fingers, fragments of skull, etc., along with ashes.[538]The evidence indicates that the burial was caused in the floor of a house. Two small painted jars were found in association with the large jar, one of which might have contained foodstuff related remains. Thus, the evidence from Modhul-ghundai also corresponds to that of post-cremation urn burials.

4.3.16 Mehi

Mehi (27°12'60"N; 65°42' E) is located in Mashkai valley of district Jhalawan in Baluchistan. The site is also located at a distance of 80 km southwest of Sohr Damb / Nal. The site measures 329 X 302 m (NS X EW) and rises to a height of 15.24 m from the surroundings. The site was first investigated and trial excavation was carried out by Aurel Stein during his archaeological tour in Gedrosia.[539] The pottery collected from the surface by Stein had affinity to those from Kulli, Siah-damb and other chalcolithic sites of Zhob and Loralai.[540] Stein also marks the absence of more developed style of pottery of the Shahi Tump style and hence considers the evidence as later to Shahi Tump and Zhob sites. Stein carried out excavations in four areas of the site, named as Trench I – IV. The evidence for burials was found from various tranches as given below:[541]

Location	Nature of remains	Burial goods
Trench I.9	Calcined human bones covered in a large broken bowl, small painted jar containing earth and ashes.	
Trench I.8	Large pot containing small bone fragments and ashes, broken high base of a large cup or bowl.	

Location	Nature of remains	Burial goods
	Stones fixed around the base of pot to secure it.	
Trench I.8	Six skulls in a heap over calcined bones; small skulls indicating some children, yet the longer bones indicated those of adults also. Presence of charred fragments and ashes indicating post-cremation interment.	Copper bracelet under one of the skulls.

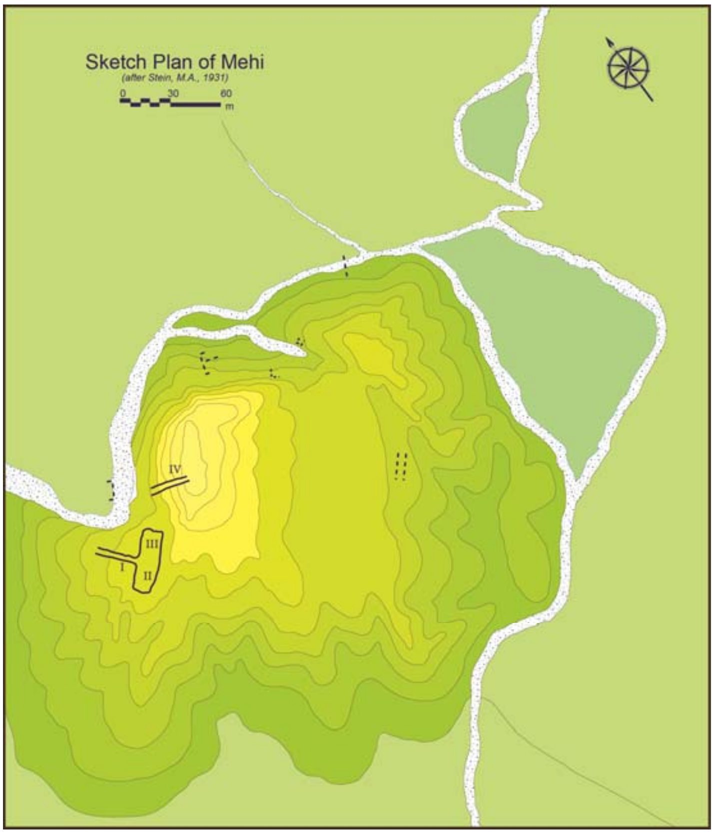


Fig. 4.328: Sketch Plan of the mound, Mehi

Location	Nature of remains	Burial goods
Trench I.4	Large urn, filled with earth, bone fragments and ashes covered by a saucer shaped pottery. Another small jar from the same section, with bone fragments.	Broken high beaker with a small base, similar to Shahi Tump evidence.
Trench II.2	A small collection of calcined bones. The remains reported to be undisturbed and buried instead of placing them in jars and hence	A large mirror, decorated hairpin, both of copper; a fragment of small bottle.

Location	Nature of remains	Burial goods
	different from burials from Trench I.	
Trench III.6	Three large conical cups along with large quantity of ashes and remains of charred wood.	Copper bowl, thin copper disc which may be a mirror, two copper bangles, bone stud or seal.
Trench III.6	Partially burnt skull in a broken condition, ashes and fragments of charred wood mixed with small bone fragments.	Three terracotta figurines of 'goddess' type, a copper hairpin, a lapis lazuli bead.
	Presence of a layer of burnt earth and ashes of 1 foot thick.	
	Strongly suggests cremation of human remains and the place continuously used as cremation ground. Further, the presence of small painted pots mixed with ashes and earth interpreted as already present there when cremation carried out.	
Trench III.10	A large broken part of an urn containing remains of broken skull; mixture of ashes and small bone fragments.	A small bronze bangle.
	Another urn one foot below of above containing bone fragments along with a skull of a child with ashes, fragments of pots.	A bull figurine.
Trench III.5	A large cinerary urn containing at the base with a large stone and small stones followed by earth with ashes, fragments of charred wood and pottery which included one painted potsherd.	
	Calcined human bones from the same layer, followed by a layer of earth and a stone closing the mouth.	Lower portion of terracotta figurine of 'goddess' type.
	These are clear indications of post-cremation urn.	

In summary, the practices of disposal of dead from Mehi are of post-cremation deposition of charred bones and ashes in cinerary vessels and also burying the partially burnt human remains with funerary goods.[542]The evidence of cremation ground is also interesting and the thickness of deposit indicating a continuous occupation. However, the burying of partly burnt human remains along with personal goods in the ground itself is also a notable practice from Mehi.

4.3.17 Sutkagen-dor

The site of Sutkgen-dor (25°29'28.08"N; 61°55'58.09"E) was first investigated by Major E. Mockler during 1875, who also carried out some trial excavation here and brought to light structures built of baked bricks. The site is located on the left bank of River Dasht in the Makran area of Baluchistan and is considered the westernmost site of the Harappans. The site is located at a distance of about 40 km northwest of Gwadar bay and around 60 km northwest of the Gwadar port. The site was investigation by Aurel Stein in 1928 who carried out excavations at various parts of the mound.[543] Stein described the configuration of the site being dominated by two massive sandstone ridges at its centre and rising to a height of approximately 18.2 m from the surrounding area.[544] These two ridges are connected by almost two parallel stone walls running in a N – S directions, measuring 91 and 118 m, thus forming a rough quadrangle at the centre.[545] Massive drainages were also noted on the surface of the mound and exposes a large number of structures, including two towers, marking a gate. The site is also marked by the presence of a large number of stonewalls of modern period.

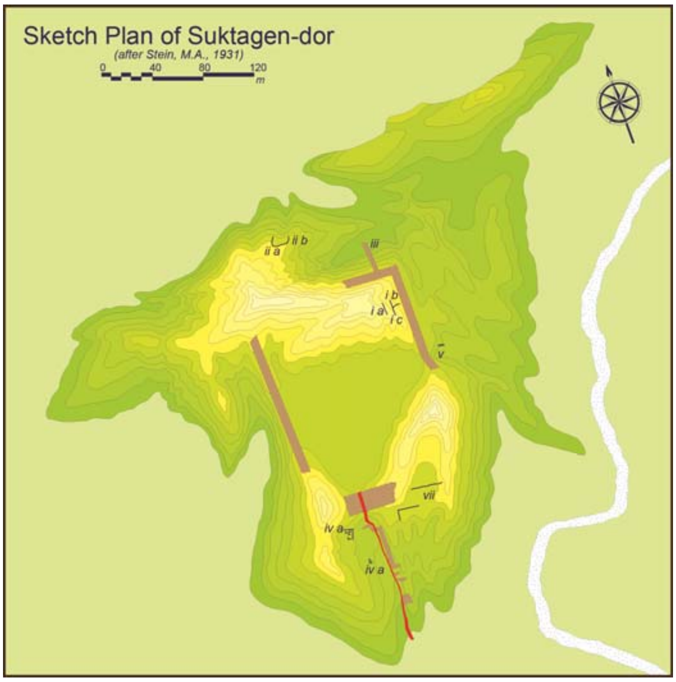


Fig. 4.329: Sketch plan of the mound, Sutkagen-dor

Stein noticed the presence of three large pots due to erosion along the outer slope of eastern wall, marked as *v* in the sketch plan at Fig. 4. One of the larger pots

contain of one place over another, the upper one poorly preserved and crushed largely. The lower one, which is larger, contained various small fragments of human bones, all calcined, which indicated a post-cremation urn typology. The other finds from the pot include *"…a small disc piece from a shell bangle, fragments of a small painted jar, ornamented with double black bands, and a complete small jar……"*[546]



Fig. 4.330: General view of the mound, Sutkagen-dor



Fig. 4.331: General view of the mound, Sutkagen-dor



Fig. 4.332: General view of the long wall, Sutkagen-dor



Fig. 4.333: A gateway, Sutkagen-dor



Fig. 4.334: Kiln of Harappan period, Sutkagen-dor

The other two pots also contain the remains of small fragments calcined bones and ashes. Stein observes that the evidences from all the three pots indicate its funerary nature of the post-cremation type of burials. The evidence from this site is also compared to those from Periano-ghundai, Moghul-ghundai and Dabar-kot, which is also similar to Sutkagen-dor evidences.[547]

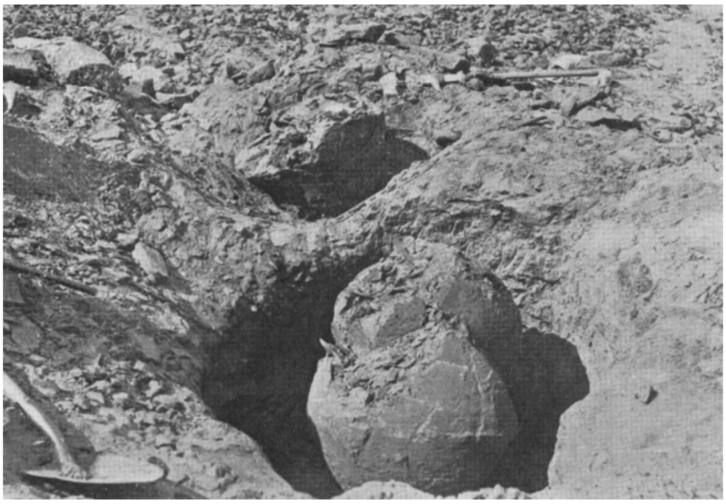


Fig. 4.335: Cinerary pots, Sutkagen-dor

4.3.18 Dabar-kot

Dabar-kot (30° 2'15.46"N; 68°40'45.64"E) is located in district Loralai of Baluchistan. It is located at a distance of 16.5 km southeast of Duki in the same district in the Thal plain watered by the river of the same name. The mound at Dabar-kot is an imposing one and Stein reports that it measured 457.2 X 411.5 m (EW – NS) and rises to a height of 34.4 m from the surrounding levels.[548]Stein carried out trial excavations at this site on the western and northern slopes of the mound marked by ***a – e*** in Fig. 4.336. Stein reports the remains of structures and numerous quantities of painted potsherds distinct from those of Periano-ghundai and Moghul-ghundai.[549] Fairservis (Jr.) notices a blending of traditions of Harappa and the local Baluchi ones, and he gives the name of Zhob cult phase for the latter one as mentioned above in 4.3.14.[550] The evidence for post-cremation burial urns was brought to light from the excavation in the cutting b wherein an urn was found at a depth of 0.6 m from the surface. The urn contained another smaller vessel inside which had the remains of ashes and fragmentary bone remains.[551] The pottery vessels are painted with black geometrical patterns over a reddish background. Further excavation in this area brought to light remains of a

painted dish found tilted over a heap of bones.[552] The remains of three urns were also found together on further digging of nearly 1.8 m from above which also contained ashes and bone fragments. The largest of the three urns, contained paintings below the mouth portion consisting of *"...diagonally arranged check pattern of diamonds filled with hachures."*[553]

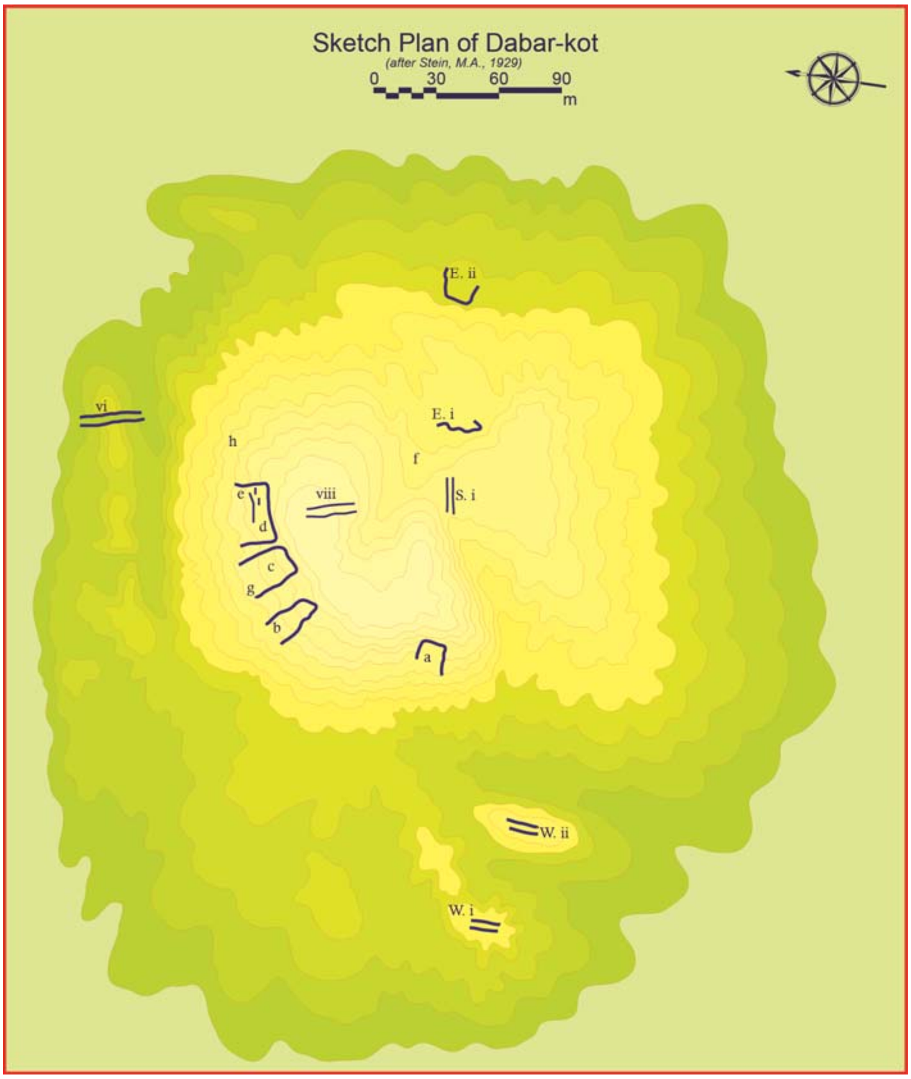


Fig. 4.336: Sketch plan of Dabar-kot



Fig. 4.337: General view of mound at Dabar-kot



Fig. 4.338: View of mound at Dabar-kot



Fig. 4.339: General view of mound at Dabar-kot



Fig. 4.340: General view of mound at Dabar-kot

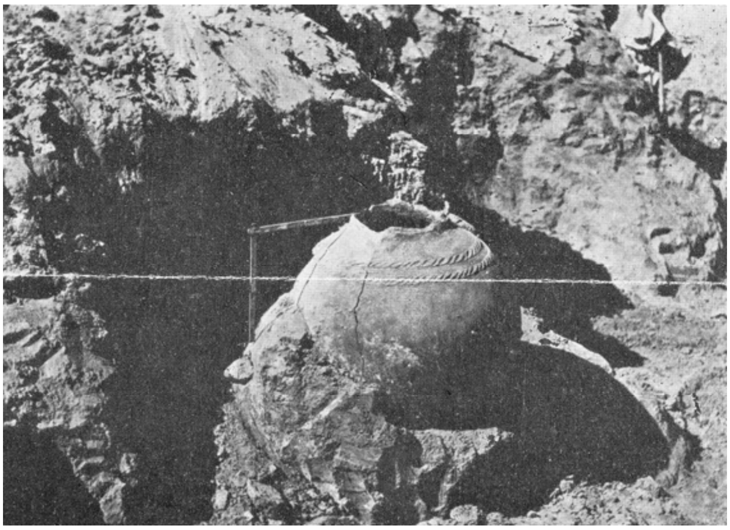


Fig. 4.341: Urn burial in E.i, Dabar-kot

Two more large urns, were also found at the same level of above containing ashes and fragmentary bone remains. All these remains indicate the practice of post-cremation urn burials, wherein the portions of cremated / burnt body fragments along with ashes were collected and placed in burial urns and buried. The excavation in the trench C also brought to light the remains of "cinerary pot". The urn is painted here in

black and red over a light yellow background. The motifs on the urn consist of *"…black festoons over dark terracotta…"* and *"…bold leaf and scroll pattern.."* over pottery fragments.[554] The associated finds include copper fragments.

4.4 Late Harappan and Post-urban Harappan

4.4.1 Harappa

The investigations carried out at Harappa is dealt in detail at 4.3.1 and hence not repeated here. The evidences on the disposal of dead from the excavations at Cemetery H are only discussed here in order to know about the burial practices during post-urban Harappan culture. As mentioned elsewhere, the Cemetery H mound is located to the south of Mounds E and D. The remains of burial pots in the Cemetery H area were discovered due to the sloped nature of terrain in this area when compared to the surrounding mounds and a slightly elevated portion wherein the local museum is located south-southeast and exposure due to gushing of water on this area after heavy rain.[555]

The area was systematically probed during the 1928-29, 1929-30 and 1930-31 field seasons. As mentioned in 4.3.1 in brief, the burials at Cemetery H are in two stratums, viz., Stratums I and II, the latter being the earliest containing earth burials while the former consist of pot burials. The earth burials consist of burial furniture in the form of water-pots, bowls, offerings dishes or plates, saucers, flat covers, flasks, round vases, etc.[556]

It is also pointed out that the Cemetery H area was used as dumping ground before its use as a cemetery based on the large occurrence of Indus type pottery of all kinds and fabric; the pointed based goblets exceeding in number of all. This area also contained a good collection of minor artefacts, which might have been deposited as discarded material along with the pottery remains.[557]

4.4.1.1 Pot Burials from Stratum I

Vats reports that up to 1928-29 11 pot-burials were excavated and later 124 more burials were brought to light.[558]Among the pot-burials unearthed at Harappa, *"……35 contained bones of adults – young or old, 21 of children, 6 whose age is doubtful, and 11 of babies or infants, while 51 were without bones and filled only with*

percolated earth."[559] The evidence from the burials suggest that only one pot was meant for interring the bones, even though exceptions are always found, in which a single pot contained three skulls. Some of the pot-burials also exhibited mixing of bones of one or more individuals.



Fig. 4.342: Panoramic view of Pot-Burials from Cemetery H, Harappa

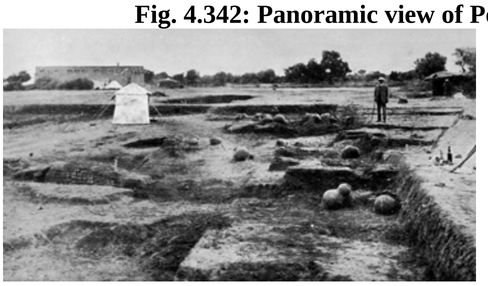


Fig 4.343: View of Pot-Burials, Cemetery H, Harappa

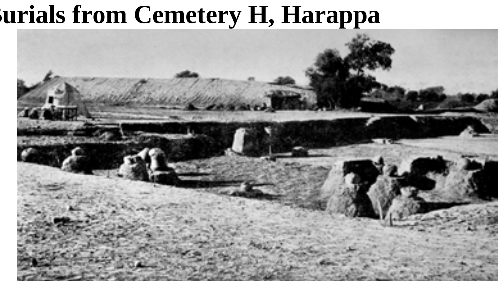


Fig 4.344: View of Pot-Burials, Cemetery H, Harappa

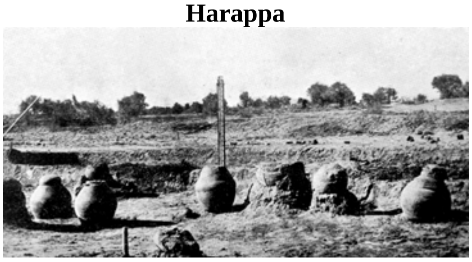


Fig 4.345: View of Pot-Burials group, Cemetery H, Harappa

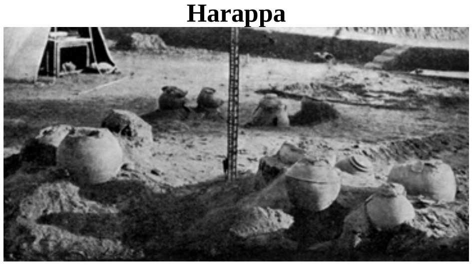


Fig 4.346: View of Pot-Burials group, Cemetery H, Harappa

Vats, who mention that normally the skull is placed at the bottom centre of the jar, and longer bones surrounding it placed either slanting or in horizontal position, bisecting each other in several cases and the remaining spaces filled with other smaller bones wherever possible, also discuss the placement of bones inside the pots.[560]The average height of placement of bone remains inside the pot is from 12.7 – 25.4 cm above the bottom, and in one case, the height noticed is 44.45 cm. Instances of charred and uncharred bones mixed with pieces of charcoal, blackened potsherds along with other artefacts in a jar (H 245 a) is also found which is compared with some post-cremation urns from the mounds of Harappa and Mohenjo-daro by Vats.[561] The child burials were found with *"…one ellipsoid, one oval and nine round jars…"* and usually

the younger babies are placed in embryonic position and without exposing them like the adult ones.[562] Further, evidence of the babies tied up first in embryonic position and then wrapped in a cloth is also put forth as observed from H 83 and H 165 a.[563]





Fig. 4.348

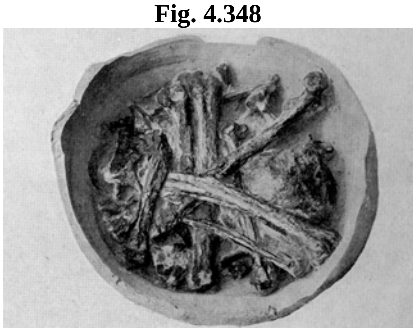


Fig. 4.347 **Fig. 4.349**

Fig. 4.347, 4.348 & 4.349: Pot-burials containing young babies, Cemetery H, Harappa

The pot-burials were found very close to the existing surface and hence the uppermost ones crushed heavily due to the traffic. The most common shapes of the pots from the burials are round, ellipsoid and carinated with heights ranging from 25 – 60 cm.[564] The round burial pots are both painted and plain, the painted ones have a flanged neck and sometimes with a ring base as in the case of ellipsoid vessels.[565] The plain vessels are also decorated below the shoulder portion in the form of roughening by fingertip / finger-groove patterns.[566] The ellipsoid burial jars are both plain, decorated with simple painted bands and some of them elaborately painted while the pots with carination are elaborately painted.[567] The burial pots were covered and closed with various utensils like inverted bowls, vases, handled lids, potsherds and bricks, and in some rare cases further covered by a sherd.[568] The burial pots usually contain fragmentary human remains placed only at the lower part while the upper part remained empty and filled with post-burial earth.[569] Vats notes that these burials are devoid of certain pottery types like goblets with pointed bases, cylindrical vases, figurines, cakes, etc., which is generally associated with post-cremation urns from the mounds.[570] Vats

further notes that the human remains interred in the burial pots are actually post-exposure remains from the dead bodies to birds and beasts based on the evidence of presence of a group of bones including two skulls, mandible and fragmentary bones in an enclosure from Mound AB.[571]

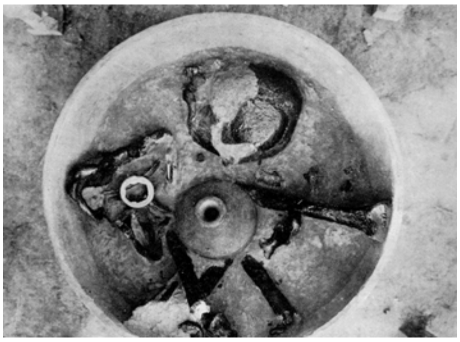


Fig. 4.350: Burial pot with a narrow necked vase, Cemetery H, Harappa

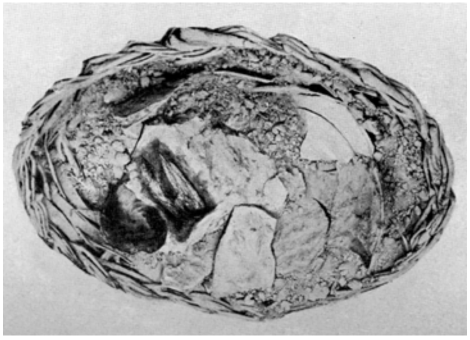


Fig. 4.351

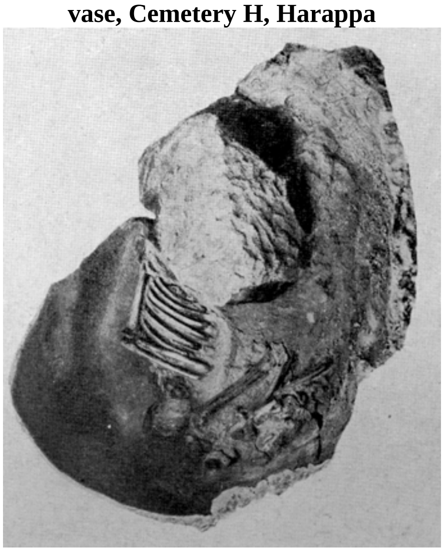


Fig. 4.352

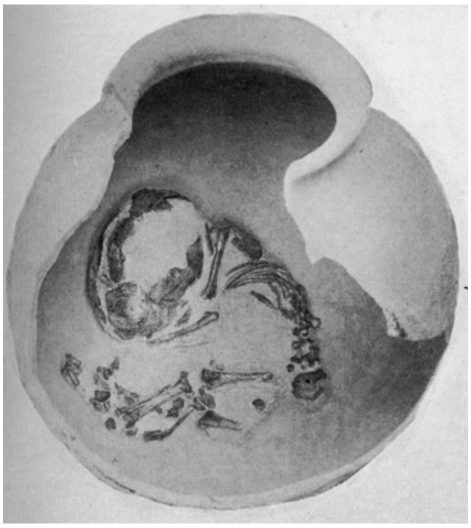


Fig. 4.353

Fig. 4.350, 4.351, 4.352 & 4.353: Pot-burials containing young babies, Cemetery H, Harappa

These burial pots are different from those found from the mounds in terms of shape and painted decorative motifs. Vats also observes that only the larger bones like skull and fragments, leg and arm bones, parts of vertebrae, pelvis, shoulder bone and other longer bones were found in the pot-burials which also indicates that the smaller bones were scavenged and carried away by birds or beasts and hence with the leftover bones, the pot-burials were prepared.[572]Some of the burial pots in terms of interment of grave furniture are discussed here in order to understand the customs and traditions.

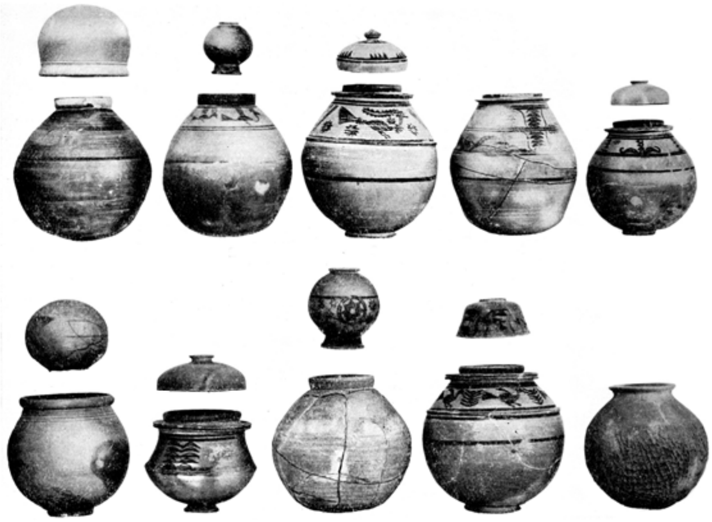


Fig. 4.354: Pottery typology from pot-burials, Stratum I, Cemetery H, Harappa

The “Mixed Group No. H 231” consist of a main group of five jars and three smaller sub-groups consisting of pottery types like bowl, saucers, flask or vases. Among these three smaller sub-groups, one fragmentary flat cover contained the remains of “forepart of *markhor* goat” and the pottery was painted underneath with fish motifs.[573]The Group No. H 206 consists of a group of eleven vessels, four ellipsoid in shape covered with inverted bowls, four roundish with upper part missing, an oval vase and goblets. The interesting feature of this group is the painted decoration of one of the ellipsoid jars (named as *a)* at the shoulder portion depicting three flying peacocks alternating with stars.[574]

The jar *b* from H 206 has again painted motifs in two bands, the lower one containing rows of leaves alternated with pair of stars, while the upper one is identified as a mythological scene and consists of two groups of figures, *“....a bull with long incurving horns on either side of a beaked human figure who has secured them by the neck with ropes held in hands and under the feet, and who also has a bow and arrow in his left hand.”*[575]The left portion of the representation shows a hound attacking the rear animal and taking the tail in its mouth, which is followed again by the representation of two horned peacocks in flight.[576] The scene again is repeated with a slight modification and the sequence is from left to right. In between the above two scenic representations, a large sized goat is shown with enormous sized horns ornamented with eight trident-

like devices.[577] The opposite side of the jar has a similar repetition of scenes with the exception that the bulls are decorated with trident shaped crest between the horns.



Fig. 4.355: Pottery typology from pot-burials, Stratum II, Cemetery H, Harappa

Vats interprets the scenic representation as a symbolic one associated with the death, wherein the left scene of hounds may be that of Yama while the right scene of bulls with trident crest represent 'Abode of Bliss' and the intermediary goat may be a 'pathfinder' which is deified here.[578] The support for this interpretation is drawn from the ancient literature like *Rigveda, Asvalayana Ghrihya Sutra, Aitareya Brahmana, Katyayana Srauta Sutra*, and from later literature like *Ramayana, Mahabharata* and *Harivamsa*.[579] The depiction of peacock on burial pots is also noticed from Jar H 150, Jar H 148 wherein a set of five conventionalised peacocks is depicted in the former while five flying peacocks alternating with rows of birds are depicted in the latter.

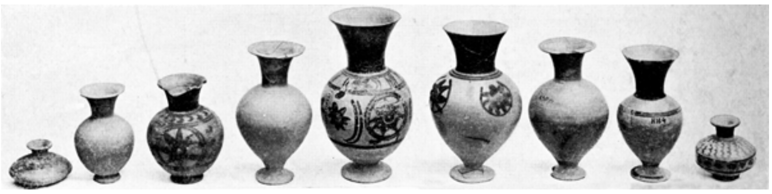


Fig. 4.356: Types of flasks from Stratum II, Cemetery H, Harappa

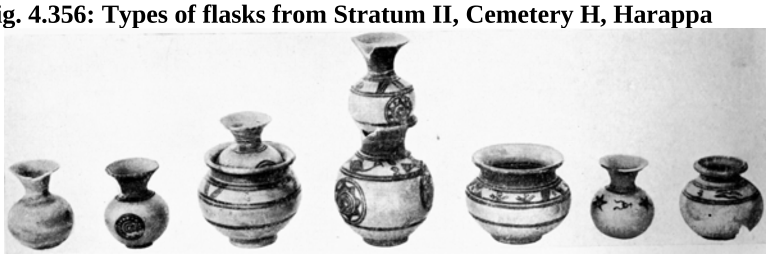


Fig. 4.357: Types of pottery from Stratum II, Cemetery H, Harappa

The other depictions from burial pots include that of long-horned and humped quadrupeds identified as bulls, birds and stars (Jar H 154),[580] rows of flying kites

alternating with leafy patterns (Jar H 148),[581] peacocks along with other animals, conventionalised trees, bulls with bird like heads carrying spirit of the dead (Group 3934),[582] a flying peacock carrying spirit of dead (in therianthropic form) (Jar H 206 *a*),[583] bands of paintings divided into horizontal bands in two tiers and *"...subdivided into a number of triangular panels decorated with rows of flying birds or fishes"* (Jar H 620),[584] two tiers, upper one consisting of rows of birds (resembling arrow-heads) and double lozenges flanked by leaves; lower one with alternating groups of varieties of birds (Jar H 623),[585] pair of peacock heads alternated with rayed orbs or stars, heads of peacocks crowned with pairs of sacred horns with twin leaves (Jar H 245),[586] two tiered decoration with *markhor* goat, trees and bird in upper while stars-in-crescent and birds in lower (Jar H 246).[587]



Fig. 4.358: Pot-burials with upper part damaged, Cemetery H, Harappa

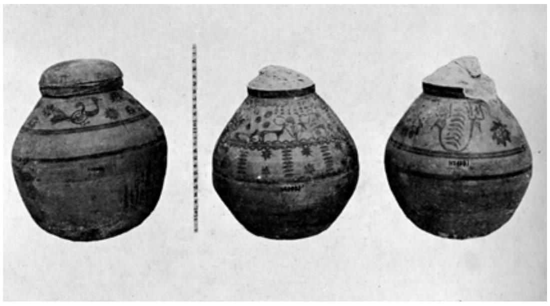


Fig. 4.359: Burial pots with mythological scenes, Cemetery H, Harappa

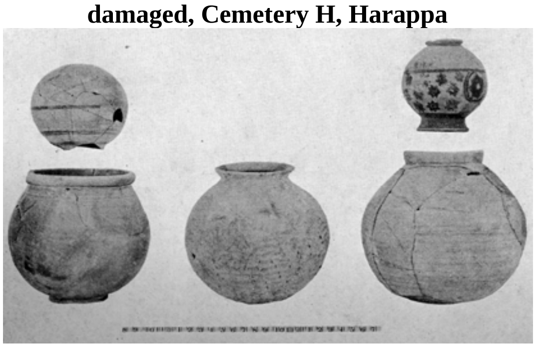


Fig. 4.360: Pot-burials type containing child burials, Cemetery H, Harappa



Fig. 4.361: Pottery types from Stratum II, Cemetery H, Harappa

The designs executed on the burial pots other than the animals and birds consisting of stars, rayed orbs, wavy lines, vegetation, flying birds, etc., are interpreted with inner meanings by Vats. Vats associated stars and rayed orbs representing heaven and sun; wavy lines and fishes to water; flying birds to carry the soul of dead person."[588] The lids of the burial pots are also decorated in a variety of motifs like bands, rough triangles, wavy lines, *pipal* leaf, orbed rays, etc.

The personal belongings like clay ball; flat & feather-like ornament of ivory with linear decoration are also found as in the case of Group 3934.[589] In another burial (Jar H 231 b), the personal belongings consist of two cog-wheel shaped nose discs of steatite was found and from burial Jar H 149 artefacts like terracotta cakes, pointed base goblet of Indus type, a dish, terracotta ball, pieces of a bangle and pestle also found.[590] The orientation of the pot-burial is mentioned only in the case of H 246 wherein within a group consisting of 9 jars, 4 lay roughly in a north – south direction.

4.4.1.2 Earth Burials from Stratum II

The Stratum II, the lower levels at Cemetery H revealed evidence totally different from the pot-burials of Stratum I. This stratum consists of human burials, extended in nature, both complete and fractional, and interred into graves dug into the ground. These burials also contain burial furniture, which is different in nature and typology from that of pot-burials. The evidence gathered from the earth burials indicates that the orientation in majority of the cases is from northeast – southwest, while in three instances it is east – west and in one case, west to east.[591] In most of the burials, the dead are placed in an extended supine position, while in five instances the legs are flexed inwards. The burials also generally contain grave furniture in the form of pottery, and in the case of five extended ones and in four incomplete burials, no burial pottery was found. The burial pottery is finished with a red polish over the surface and decorated with black colour paintings. The nature of burial pottery associated with the burials is water-pot, a small round *ghara* (pot), round pot, squat vase, bowl, flask, food plates or dishes, flat covers. The order of frequency among the pottery from maximum to fewer in order is water pot, bowl with or without a flask inside, food plates or dishes with or without a stand.[592] The pottery, which occurs in fewer frequencies, is the flasks, saucers and flat covers. The lesser frequency pottery also occurs separately in the burials and if not associated with other major pottery types, they are found usually in large numbers.[593] The pots that are generally larger than the water pots are termed as *kalasas* by Vats and these types of vessels are found with gypsum crystals at the bottom, which is interpreted as due to the presence of water inside. The *kalasa* is also covered with a small flask, which is said to have been with a utility purpose of drinking water for the deceased.[594] The burials, which are rich in terms of pottery, are H 502, H 502, H

697, H 698 and their general arrangement consist of placing near the head, the body, and foot, with the most common preference is the first one. The category of pottery described as offering dishes *".....are squat, strong and well made, with raised horizontal mouldings on the base."*[595] The bowls are plain, while the saucers are deep and decorated with chevrons and with holes at the rim. The saucers are painted on the underside with various motifs like *"....deer, peacocks, trees, leaves, stars, birds, fishes, hands, tassels, etc."* Vats also notes that the profusion in the decoration is noted in the upper levels of the stratum.[596] The flasks from the burials have both well-defined base as well as roundish base without no projection and decorated with "….simple designs consisting of lines and chevrons, stars in circles or crescents, and with a dark slip over the neck; in others only the neck is painted."[597] A brief of each of the earth burial is given[598] under for understanding the placement of skeleton, burial pottery, posture etc.:

Burial	Particulars	Burial goods
H 710	Adult female, oriented roughly east – west; extended, head turned towards left; left arm placed over the shoulder and right one placed between left arm and pelvis.	No burial furniture found
H 695	Adult male with well-developed bones, laid in supine in east – west orientation	Burial pottery placed in four sub-groups, some of them mixed with later pot-burial group.



Fig. 4.362: Panoramic view of earth-burials, Stratum II, Cemetery H, Harappa

H 698	Contained four earth burials, viz., H 698, H 696, H 697 and H 485; H 698 is an adult male, extended with west – east orientation, head turned toward left, hand crossing each other over the right of pelvis; left hand over right.	Burial pottery found crowded near the feet, a medium-sized jar, two saucers, one flask, two large sized flasks, four small round vases. Bones of sheep / goat found to left of skeleton; some animal ribs placed in the hands.

Burial	Particulars	Burial goods
H 696	Adult male, northeast – southwest orientation	Burial pottery near the head consisting of two water-pots, each closed with a flask; water pots decorated with rows of stylised leaves alternated with winged figure.
H 697	Adult male, lying in east – west orientation, in supine position, head turned towards left, left arm folded and kept on shoulder, right arm bent and placed near the chest; legs almost bent and drawn up with right placed over left.	Burial pottery consists of flat covers, saucers, wide cups, handled lids, broken cups, vase, a small *ghara*, food plate.
H 485	Young adult male in east – west orientation	No burial pottery found



Fig. 4.363: Burial H 696, Cemetery H

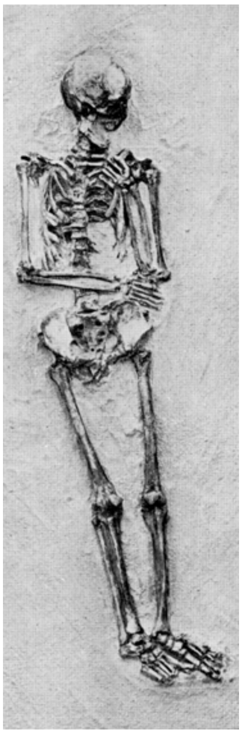


Fig. 4.364: Burial H 710, Cemetery H



Fig. 4.365: Burial H 695, Cemetery H

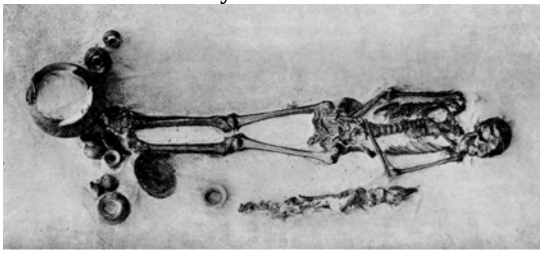


Fig. 4.366: Burial H 698, Cemetery H

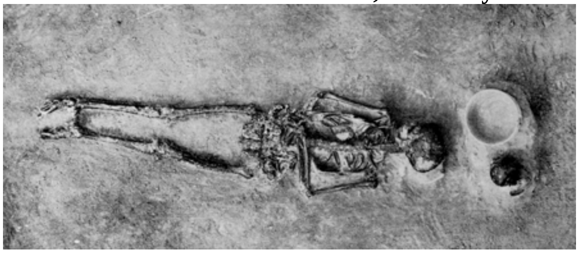


Fig. 4.367: Burial H 306, Cemetery H

Burial	Particulars	Burial goods
H 488	Adult female, northeast – southwest orientation; extended and better preserved; head turned to left, arms straight along the body.	Associated with this are animal bones, a *kalasa* closed with a flask.

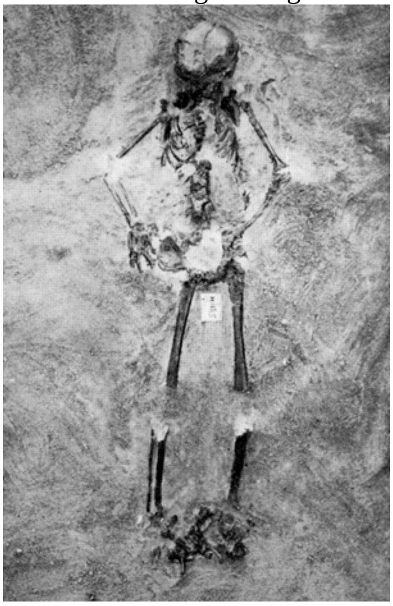


Fig. 4.368: Burial H 485, Cemetery H

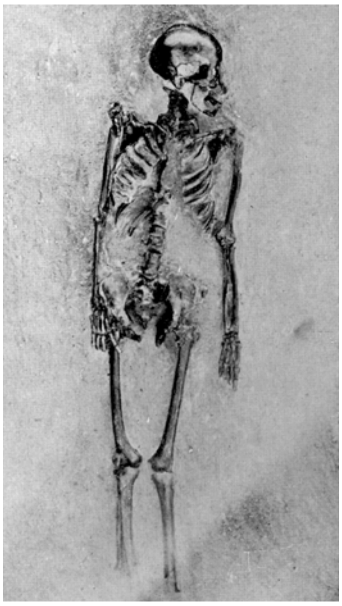


Fig. 4.369: Burial H 488, Cemetery H

Burial	Particulars	Burial goods
H 636	Adult, northeast – southwest orientation, mixed up skeletal remains.	No burial pottery.
H 502	Adult male, northeast – southwest orientation, head turned towards left and legs flexed inwards	2 *kalasas* each closed with a flask; a plain bowl with a flask inside; one large flask, 2 saucers, five flat covers; fragmentary animal bones between the saucers.
H 501	Young adult, lying to right with lefts flexed inwards; arms bent upwards and placed in front of face	A *kalasa,* bowl with flaks inside, 8 saucers and flat covers, an offering dish; stray animal bones between saucers and flat covers.
H 484	Adult male, northeast – southwest orientation; left hand placed over the chest and right over abdomen; legs drawn up.	A small, narrow-necked vase below the lower jar; 2 flasks and a bowl close to right shoulder; a *kalasa* closed with flask near the head; animal bones between the *kalasa* and the bowl.

Burial	Particulars	Burial goods
H 88	Adult female, southeast – northwest orientation; extended, right hand over left forearm and legs folded up.	Bowl with a flask inside.

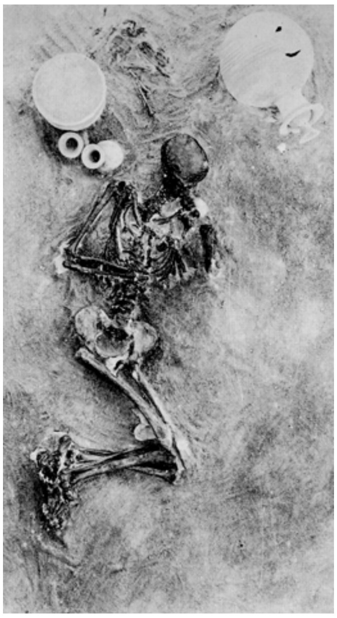


Fig. 4.370: Burial H 484, Cemetery H



Fig. 4.371: Burial H 501, Cemetery H

H 184	Adult male, east – west orientation; dismembered and portion of skeleton preserved	Group of pottery to east and south consisting 2 long-necked *kalasas*, 4 flasks, 1 bowl, 1 vase, 1 offerings dish, 8 flat covers each with pair of holes, 5 saucers; animal bones including vertebral column near the saucers.

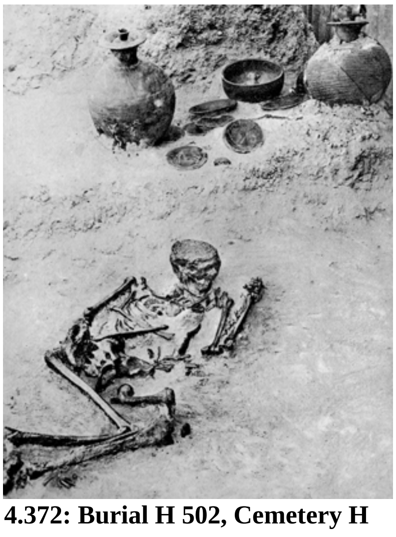


Fig. 4.372: Burial H 502, Cemetery H

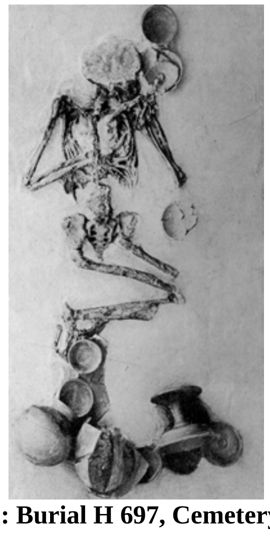


Fig. 4.373: Burial H 697, Cemetery H

Burial	Particulars	Burial goods
H 307	Fractional burial of an adult male, southwest – northeast orientation	Stray animal bones to north and west; no pottery.
H 306	Adult male, northeast – southwest orientation; supine and head turned towards right; forearms crossed over abdomen	A bowl and a flask.

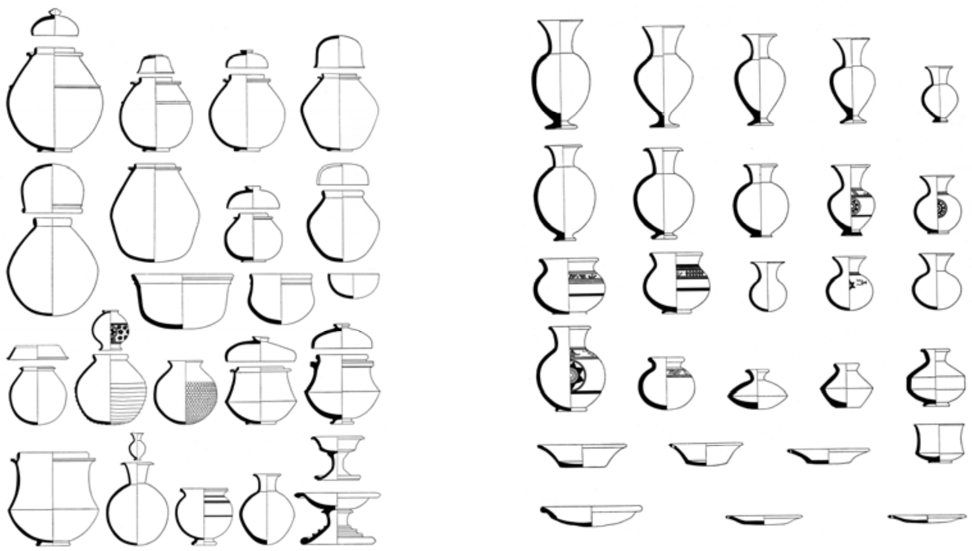


Fig. 4.374: Typology of burial pottery from Cemetery H, Harappa



Fig. 4.375: Typology of burial pottery paintings from Cemetery H, Harappa



Fig. 4.376: Typology of paintings on flat covers, Cemetery H, Harappa

4.4.2 Bhorgarh

Bhorgarh ($28^0 49'$ N; 77^0 5' E) is a village, located some 30 km from the Old Delhi railway station and the ancient mound is 500 m west of the present village. The ancient mound measured 130 m east – west and 100 m north – south. However, the original mound spread over several acres of land, and was reduced to a small patch due to the consistent levelling activities of the villagers for agricultural purposes. The River Yamuna once flowed nearby the ancient site, which is now nearly 10 km south of the present village. The excavation at this mound was carried out by the Department of Archaeology, Government of Delhi for two field seasons, viz., 1992-93 and 1993-94. The following cultural periods were identified at this site by the excavator which spanned over 2500 years:[599]

Period I	Late Harappan (second millennium B.C.)
Period II	Painted Grey Ware Culture (first millennium B.C.)
Period III	Kushan (second and third centuries A.D.)
Period IV	Medieval (sixteenth and seventeenth centuries A.D.)

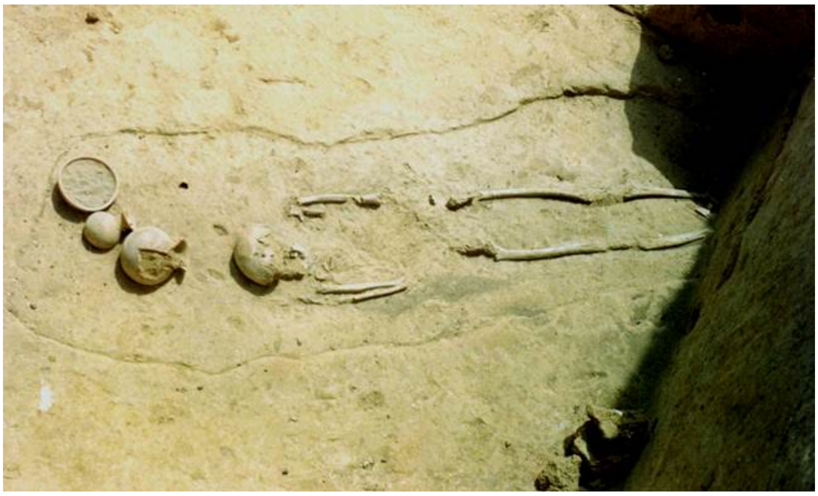


Fig. 4.377: Grave 1 at Bhorgarh

The **Period I** corresponds to Late Harappan period and is dated tentatively to the second millennium B.C. with the absence of any radiocarbon dates. The habitational remains of this period could not be traced and is only marked by the presence of two graves, named as Grave 1 and 2. **Grave 1** is an extended burial, placed in an almost north – south orientation and in supine position.[600] However, the photograph clearly

shows the orientation in respect to the two sections, which should have been northwest – southeast, recalling the evidences from Sanauli. The grave goods consisted of only three earthenware vessels of red ware, one a medium sized bowl and the rest two small vases of varying sizes. The skeleton measures 176 cm in length and both the hands were found folded from the elbow and seems to have been placed on shoulders.[601] **Grave 2** is also an extended burial but without any grave goods. This burial is also in the same orientation as above, i.e., northwest – southeast. The left hand of the skeleton was found placed parallel to the vertebral column.[602]

4.4.3 Bhagwanpura

Bhagwanpura (30^0 4' N; 76^0 57' E) is located on the right bank of dry bed of River Saraswati and at a distance of 24 km northeast of Kurukshetra, which is the district headquarter. The habitational remains at Bhagwanpura which rises to a height of 2.4 m from the surrounding area was noticed at a distance of 350 m south of the village of same name.[603] The site was discovered by R.S. Bisht in 1974. The excavation at this site brought to light two cultural horizons, viz., Late Harappan and Painted Grey Ware cultures, with a maximum deposit of 3.2 m.[604] It has been attributed by the excavator that for the first time in an archaeological deposit, the interlocking of Late Harappan culture with Painted Grey Ware culture was brought to light from this site.[605] The two cultural horizons have been designated as Sub-Period IA (Late Harappan) and Sub-Period IB (PGW).

The Late Harappan period is further classified into two phases which is characterised by raised mud platforms, one of which was excavated and measured 4.25 X10 m. The settlement was badly damaged after a deposit of about 70 – 80 cm, the evidence of which was clearly noticeable in most of the excavated area.[606] The pottery repertoire of this sub-period consist of (a) red ware of late Harappan type, (b) ochre colour ware from flood affected trenches, (c) red ware have affinities with Cemetery H type, (d) incised ware in several designs and patterns, (e) thick grey ware and (f) pottery of Bara type, both plain and incised.[607] The artefact finds include that of terracotta figurine of a bull, terracotta wheels, copper rods and pins, beads of faience, semi-precious stones and terracotta, etc.

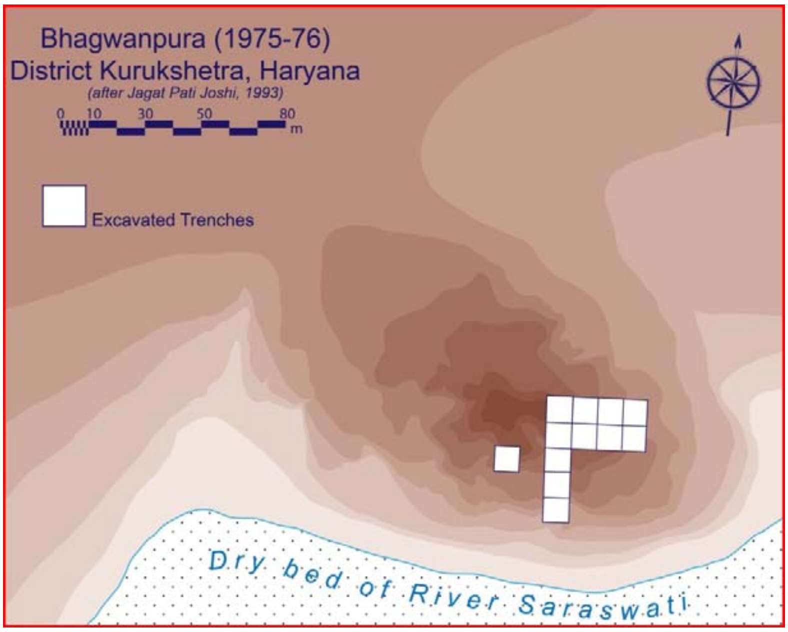


Fig. 4.378: Site plan of Bhagwanpura

Among the artefact finds, the most noteworthy is that of a carnelian humped bull.[608] The PGW deposit is found interlocked with the Late Harappan one and no breakage of habitation is noticed from the excavation. There is a small phase of interlocking between the two cultures at this site which is also marked by the huge flooding after which people belonging to both the traditions continued to live at the site continuously, even though the percentage of Late Harappan pottery started to decrease in comparison with PGW.[609] The excavation also brought to light three structural phases of sub-period IB, which also showed contract to the previous sub-period, wherein only wattle and daub structures, either round or semi-circular were used for habitation. The people of sub-period IB constructed mud walled houses, the most prominent one consist of 13 rooms with a corridor.[610]The last structural phase consists of houses built of baked bricks also. The artefact finds include those made of copper, faience (beads and bangles), terracotta (beads, figurines), and bone (styli). The pottery repertoire consisted of Painted Grey Ware, plain grey ware and late Harappan pottery.

4.4.3.1 Burial Remains from Bhagwanpura

The presence of two skeletons from the habitation remains of sub-period IB was also brought to light. The orientation of both the skeletons is in north – south

direction with the face tilted in west direction. One of the skeletons belongs to an adult male of 35 years while the other is that of a female infant.[611] The burials are devoid of any grave furniture and the excavator surmises that even though the orientation of the burials is according to the Harappan burial practice, a new feature of interring the dead very near to the habitation is noticeable here.[612]



Fig. 4.379: Burial of an adult male, Bhagwanpura



Fig. 4.380: Burial of a female child, Bhagwanpura

The burials have been noticed from the sub-period IB of Bhagwanpura. However, no clear indication of these burials belonging to either one of the two cultural levels is given by the excavator. It is also pertinent to notice here that even though the PGW people arrived at the site, the Late Harappans continue to live along with them. This evidence clearly demonstrates that the burials could have belonged to the successors of Late Harappan at the site, and the slight departure in traditions noticed might be attributed to the arrival of new customs and beliefs.

4.4.4 Dher Majra

Dher Majra (31^{0}2' N; 76^{0} 33' E) is located in district Rupnagar of Punjab and 11 km to the north of district headquarter Rupnagar. The site is located on the banks of a seasonal stream known as Kanahan *Nadi*. The latter joins River Satluj along with River Sirsa nearly 4.8 km west-northwest of Dher Majra. The extent of the site is roughly 91.44 X 106.7 m and rises to a height of roughly over 4 m from the surrounding plains even though the original height has been estimated to be much more than the present extant one.[613] The site was excavated by Olaf Prufer under the Jamia Millia Islamia Research Foundation in 1951.

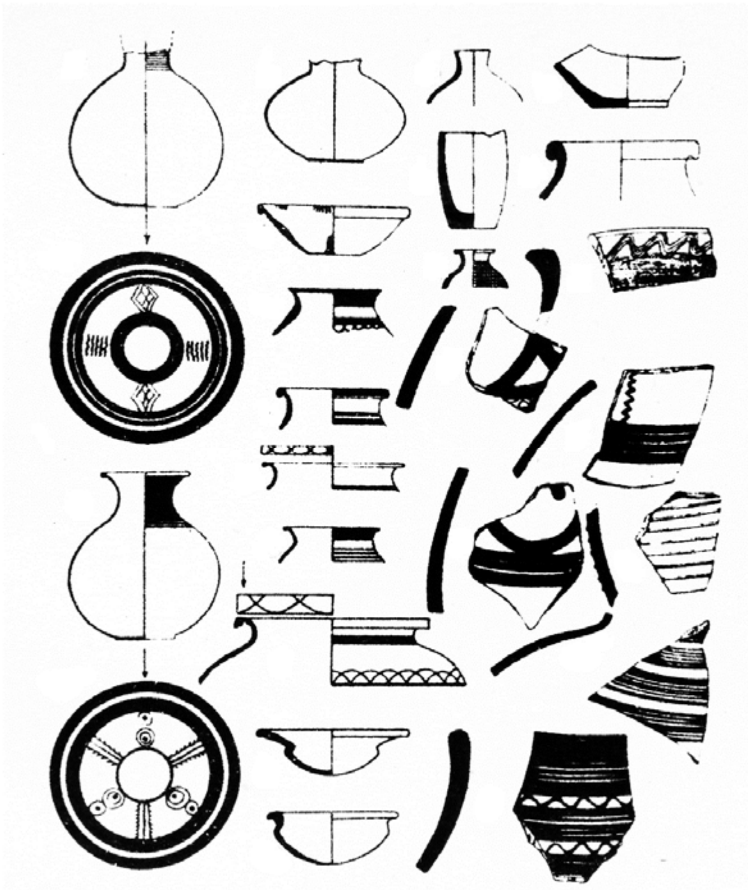


Fig. 4.381: Late Harappan pottery types, Dher Majra

The excavator identifies a small elevated mound to the southeast of main mound which is separated by a small depression as an ancient kiln.[614] The site was excavated by laying out four trenches namely A, B, C and D. Of the four trenches, Trenches B, C and D brought to light remains of two cultural phases, namely the

Harappan Culture and another one of a later period.[615] The excavator notes the absence of any brick buildings at the site. Among the four trenches, Trench B brought to light six layers, of which layers 1 and 2 yielded painted pottery reported of non-Harappan type. The excavator reports that the layer 2 yielded *".....evidence of burials, both ordinary and crematory"*.[616] The layers 3 and 4 brought to light pottery of the typical Harappan types, while in layer 5 the percentage of pottery decreases and layer 6 is an artificial platform raised on river pebbles.[617]

The ceramic industry consist of the typical Harappan types and types similar to Cemetery H. Of these, the excavator clearly identifies the appearance of pottery of Cemetery H type from layer 3 and its domination in upper two layers. The excavator also highlights the presence of painted and incised red ware along with pottery of Cemetery H type. Further, as the burials of *'ordinary and crematory'* nature have been reported from layer 2, they can be placed to Late / Post-urban Harappan period. Among the artefact finds, the important ones are broken bronze bangle, copper toothpick, faience bangles of bluish, green and reddish colours; terracotta toy cart wheels, gamesmen, sling balls; bone stylus, a fragmentary terracotta figurines; crude variety of stone weights, of non-Harappan types, saddle querns, pestles, beads of agate, copper, jade (vesuvianite ?), crystal, lapis lazuli and faience and the absence of chert blades and terracotta cakes.[618]

4.4.5 Bedwa

The burials at Bedwa (*29^0 4'4" N; 76^0 17' 45" E*) were discovered accidentally during a clearance operation by the local villagers in the sand dunes located nearly 300 m southwest of the village.[619] Bedwa is at a distance of nearly 15 km north of Meham, in the district Rohtak in Haryana. The villagers noticed remains of human bones and pottery fragments from among the sand dunes. A team led by Vasant Shinde investigated the site and they brought to light the remains of 14 identifiable graves spread in an area of one hectare.[620] The burials were laid in an extended position on their back in a north – south orientation and often found with pottery as burial furniture, generally placed near the head portion.[621] The variation in the internment of burial goods in the form of less or more pottery remains has been interpreted as a reflection of

economic or social status of the buried individual. The burial pottery generally consisted of varying sizes of bowls, dish-on-stands, *lota*-shaped pots, perforated jars, spherical collarless pots, miniature pots and small beakers. The ceramics are generally plain in nature, except a few ones which contain simple black bands around their bodies.



Fig. 4.382: Nature of sand dunes which revealed burials, Bedwa

The remains of ash and bone fragments were also noticed in some of the pots, which are interpreted as possible post-cremation burials. The burials are dated to early Late Harappan as most of the burials exhibition mature Harappan pottery characteristics like long stemmed dish-on-stands, perforated jars and beakers.[622]



Fig. 4.383: Pottery from the surface collection, Bedwa



Fig. 4.384: Pottery from the surface collection, Bedwa



Fig. 4.385: Pottery from the surface collection, Bedwa

4.4.6 Puthi Seman

The burial site near Puthi Seman (*29^0 3' 47" N: 76^0 18' 52" E*) is located at a distance of 2 km from the village and 20 km from Meham in district Rohtak. The burial remains at Puthi Seman are estimated to have been spread over 1.2 ha and the nature of its disposition is very much similar to the Bedwa evidence. At Puthi Seman too, the burials are oriented in north – south orientation and only one burial could be cleared *in situ* which also indicated placement of head and pelvic portions of the body on large flat fragments of storage jar.[623] The investigators also concluded that both the burials remains at Bedwa and Puthi Seman could have formed part of the cemetery complex of nearby Farmana due to the similarity of findings.[624]



Fig. 4.386: Nature of sand dunes which revealed burials, Puthi Seman



Fig. 4.387: Burial exposed at Puthi Seman



Fig. 4.388: Burial pottery, Puthi Seman

4.4.7 Abhaipur

Abhaipur (28^0 18' N; 79^0 45' E) is locally known as *Abhaipur-Chena-Naktikhera* and is located nearly 1 km west of the village Abhaipur in district Pilibhit, Uttar Pradesh. The ancient site is located nearly 1.5 km to the west of River Deoha, a tributary of River Ramganga and 35 km to the east of Bareilly. The site was excavated for three-staggered field seasons starting from 2001-02 and continued in 2003-04 and 2005-06 by Anup Misra and U.P. Arora of the M.J.P. Rohilkhand University, Barielly.[625] The excavation brought to light a four-fold cultural sequence, viz., Period I represented by Ochre Coloured Pottery (OCP), Period II by Black and Red Ware (BRW), Period III by Painted Grey Ware (PGW) and Period IV by Northern Black Polished Ware (NBPW).[626] **Period I** represented by OCP culture could be probed only in a limited area and yielding fragmentary sherds of OCP, a red slipped ware sherd.[627] The main shapes represented are jars or jar / pots and dishes-on-stand.

Period II is marked by the occurrence of black and red ware culture along with structures remains indicated by the presence of mud walls, fragments of burnt wattle and daub, and burnt floors. The other finds from this period include that of *".....animal bones, charred fish bones, small bones and nail, perhaps of birds and turtle shells, ……bone arrowheads and projectile points.*"[628] This period is also marked by the presence of a large number of unfinished arrowheads thereby indicating the usage of bow and arrow in a major way. The ceramic industry of this period consists of black and red ware, black slipped ware, coarse red ware and the major types include that of jars, dishes, bowls, basins, vases, chalices of different types and size.[629] **Period III** is

represented by PGW culture and the excavators identify the habitational deposits of this period as *".....light ashy colour, sand-silt texture and non-uniform nature."*[630] Further, the excavators also identify a yellowish homogenous layer sandwiched between the BRW and ashy PGW layer also yielding PGW pottery. The PGW habitation at the site is marked by the presence of a large number of pits.



Fig. 4.389: Painted Grey Ware from Abhaipur

The habitation remains are characterised by the non-absence of complete plans of houses, and only remains of brickbats, mud walls, wattle and daub, mud plastered floors, burnt clay nodules with reed impressions were recovered.[631] The other characteristic features of this period are shared cultural traits between the preceding period, i.e. BRW including ceramics; introduction of new ceramic types and iron tools, a well-developed bone tool industry and a bone workshop; subsistence based on agriculture and stock-breeding, hunting-gathering, fowling and fishing.[632] The other main features include iron and copper metallurgy, ceramic industry, beads of agate, carnelian, jasper and crystal; *ghata* shaped terracotta beads, copper bangles, pottery discs, etc.[633] The ceramic industry is represented by the presence of PGW, plain grey ware, black slipped ware, red slipped ware in plain and painted varieties, black and red ware, coarse red ware and perforated ware.[634]

4.4.7.1 The Burials from PGW levels

The remains of two burials of the PGW culture, one of an adult and other of a child, were discovered during the field season 2005-06. The extended **adult burial** was found at a depth of 0.89 m below the surface and placed in an orientation of NE – SW direction. The burial was found below a layer of compact black soil spread across in the

entire excavated area.[635] It has been interpreted that the body of the deceased was "……interred in a shallow, narrow pit dug into the floor of a house."[636]



Fig. 4.390: General view of the burials, Abhaipur





Fig. 4.391: Adult Burial (left); Fig. 4.392: Child Burial (right), Abhaipur

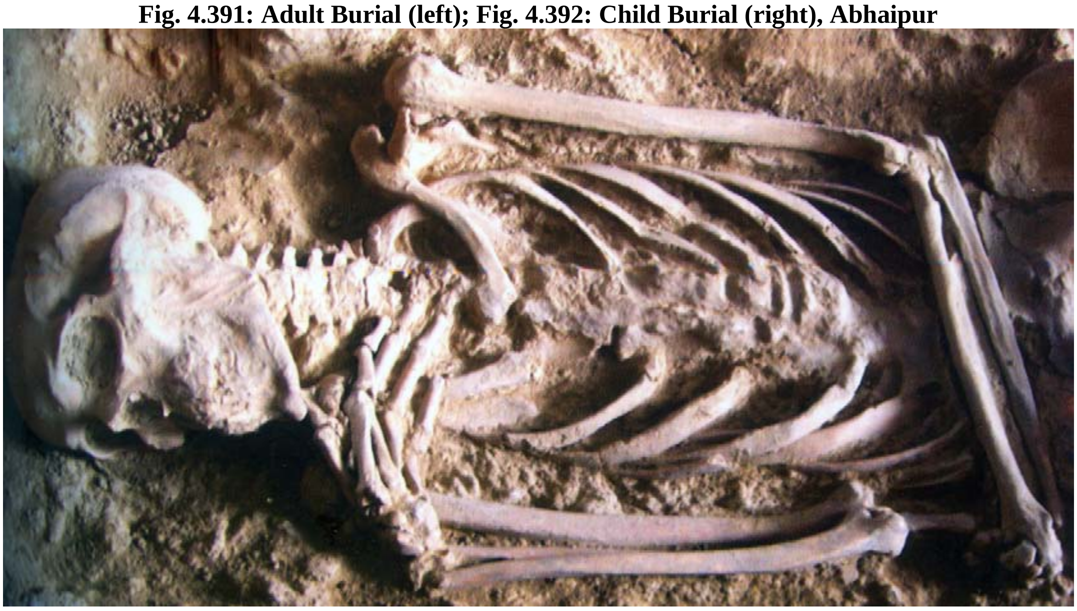


Fig. 4.393: Details of Adult Burial, Abhaipur

The curved posture at the waist and the head along with legs raised in a slight elevation has been interpreted due to the small burial pit. The position of the skeleton reveals that the deceased was placed prone with a slight inclination towards the right and head faces right and the extant height of the individual is 1.7 m. The left arm is placed resting on the waist with fingers hanging down while the right arm is also folded with the palm in front of the chin. The associated burial goods included that of a wide mouthed, convex sided bowl of PGW, painted in red on the exterior and with impressions of designs on interior. The **child burial** was found to the northwest of the adult burial in a north – south orientation and at a depth of 0.56 m below the surface.[637] As in the case of the adult burial, the child burial was also interred below a floor level. The longer bones along with fragmentary skull bones were only preserved. The child was placed with legs in a flexed position, right hand on the waist, and lying to its right.[638] This burial did not yield any burial goods.

4.4.8 The Burial Types of Northwest Pakistan

The burial types found from the Vale of Peshawar, Swat and Dir Valleys of Pakistan along with Bajaur and Mohmand Tribal Agencies are also grouped under 'Gandhara Graves' even though except the Vale of Peshawar, the remaining areas were never considered traditionally to be a part of Gandhara region.[639] The investigations in the above-mentioned areas during the second half of 20th century have brought to light a large number of sites of the Iron Age period. M. Zahir has compiled the sites with cemeteries discovered from various regions as follows, Swat Valley (52 sites), Dir Valley (20 sites), Chitral (47 cemeteries), Bajaur and Mohmand Tribal Agencies (69 cemeteries), Vale of Peshawar (19 sites).[640] Zahir, while stressing for a revised chronological framework of the cemeteries of this region due to the fact that the cremation and inhumation type of burials were present in all the periods in Dir and Swat Valley, raises some serious doubts on the chronology devised by Istituto Italiano per il Medio ed Estremo Oriente ('Italian Institute for Middle and Far East') (IsMEO) and University of Peshawar (UoP).[641] The chronological framework as suggested by Bagnera *et al* is Early Period (14th – 11th century BCE), Middle Period (10th – 8th century BCE) and Late Period (7th – 4th century BCE).[642]





Fig. 4.394: Upper stone construction, Timargarha 2 (left); Fig. 4.395: Upper stone construction, upper chamber and sealing stone, Timargarha 2 (centre); Fig. 4.396: Cist grave, Timargarha 1 (right)

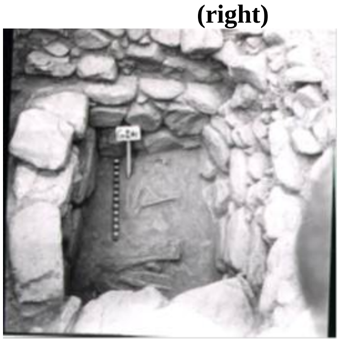




Fig. 4.397: Face Urn containing post-cremation remains (left); Fig. 4.398: Flexed inhumation (centre); Fig. 4.399: Disarticulated inhumation (right), all in a dry masonry chamber from Timargarha 2 cemetery

The important excavated cemeteries in the region are Kherai in Gorband Valley,[643] Ghaligai,[644] Leobanr,[645] Aligrama,[646] Kalako Deray,[647] Barikot,[648] Bir-kot-ghundai,[649] Katelai & Butkara II,[650] Timargarha,[651] Sarai-Khola,[652] Gogdara IV,[653] to name a few. The cultural chronology of the Swat Valley is based upon the excavations carried out at Ghaligai during 1960s by Stacul.[654] The chronology as defined by Stacul, which is still largely followed by the teams of IsMEO and UoP working in this region, is as follows:

Cultural Periods	Chronology	Cultural Assemblage
Period I	2400 – 2100 BCE[655] (2970-2920 BCE)[656]	All hand-made pottery, tempered with coarse sand, surface colour varying from red-brown to grey-brown; comparable with Chalcolithic sites of Turkmenistan.
Period II	1810±50 BCE[655] (2180 BCE)[656]	Found only at Ghaligai cave; pink or pinkish-brown pottery, made of fine paste and wheel-turned; comparable with Chalcolithic sites of northern Baluchistan and Indus valley by Stacul.

Cultural Periods	Chronology	Cultural Assemblage
Period III	1505±50 BCE[655] (1950-1920 BCE)[656]	Strikingly different from Period II; Hand-made pottery of crude clay, mat impressions on the base; colour varies from grey-brown to red-brown; remains found from Ghaligai and Butkara I; compared with Phase I of Burzahom.
Period IV	1700 – 1500 BCE[655] (1730-1300 BCE)[656]	Comparable with Barikot, Leobanr III, Phase II of Kashmir, Tepe Hisar IIB-IIIB; handmade burnished, grey and buff wares of fine quality; red ware, wheel-turned with black bands; stone and bone tools, presence of copper.
Period V	1500 – 1000 BCE[655]	Archaic phase of graveyards, cut into the ground on hill sides, covered with stone slabs; graves in cists, with sides, floor made of slabs; cremation dominates over inhumation; rectangular settlements of stones on hill sides; wheel-turned pottery, presence of copper; graves compared with Timargarha, potter with lowest levels of Charsada, Iron Age I of Western Iran and Phase V of Hasanlu.
Period VI	1000 – 500 BCE[655]	Middle phase of graveyards, typology of Period V continues, but funeral dominates over inhumation and cremation; very fine, wheel-turned grey pottery; chalices and cup-on-stands common in graves; comparable with Hasanlu IV and Iron Age II of Western Iran.
Period VII	500 – 400 BCE[655]	Late phase of graveyards, inhumation dominates; very fine wheel-turned red ware, decorated and incised; presence of copper and iron; anthropomorphic figures of terracotta with flat geometrical bodies.





Fig. 4.400 & 4.401: Views of the cemetery at Leobanr I



(a) (b) (c) (d) (e) (f) **(g) (h) (i)**

Fig. 4.402: Examples of single flexed inhumations (a-c & f are from Leobanr I and remaining from Katelai cemetery)

4.4.8.1 The Burial Types

The available literature largely based on the excavations carried out by IsMEO and UoP defines the following burial types:

(i) *Graves consist of a lower and upper chambers constructed inside pits; constructed of slabs or masonry; the lower chambers contained human skeletal remains and grave goods;*

(ii) *Interment consists of flexed inhumations, post-cremation, and a combination of both; flexed inhumations in crouching position, turned towards right or left; head towards the mountain and legs towards valley;*

(iii) *Post-cremation types consist interment of cremated remains like bones, ashes and charcoal in pottery urns and placed in the lower chamber, and in some cases in upper chamber also;*

(iv) *The pottery urns and box urns (with perforations, with lids and raised legs in some cases) are found used for post-cremation burials; sometimes pottery urns found in highly decorative condition with "….plastic, incised, ridges and rectangular / spherical perforations.."*[657] *A pottery urn shape is particularly different and it has "….an applied (stylized) nose, perforations for mouth and eyes and applied eye brows, called a face or anthropomorphic urn…"*[658]

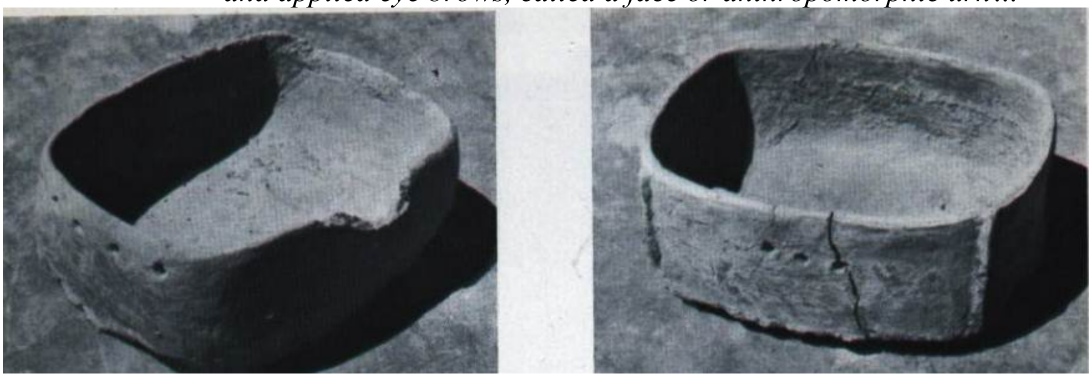


Fig. 4.403: Excavated box-urn burials from Katelai I cemetery

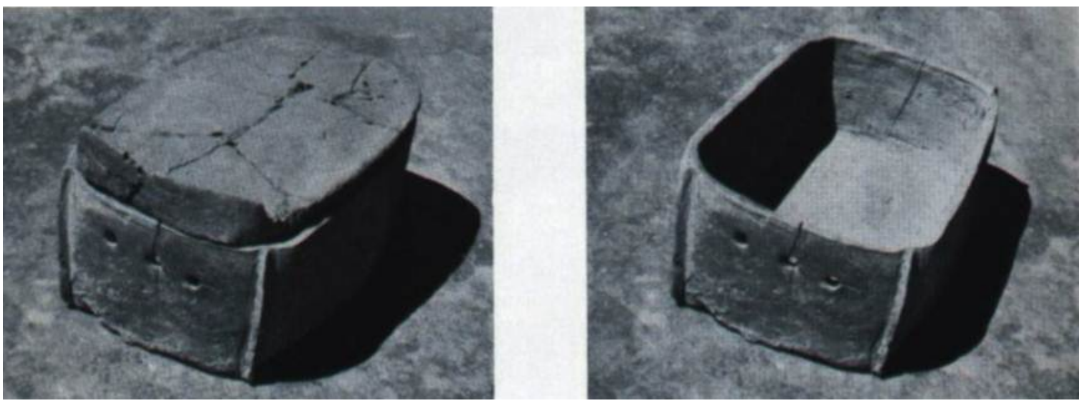


Fig. 4.404: Excavated box-urn burials from Katelai I cemetery

(v) *The grave goods consist of pottery of grey and red ware types, numbers varying from a single vessel to many dozens; animal and human figurines.*[659]

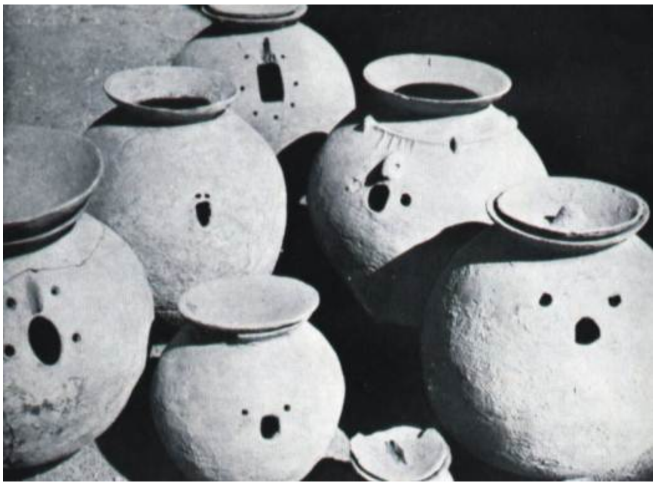
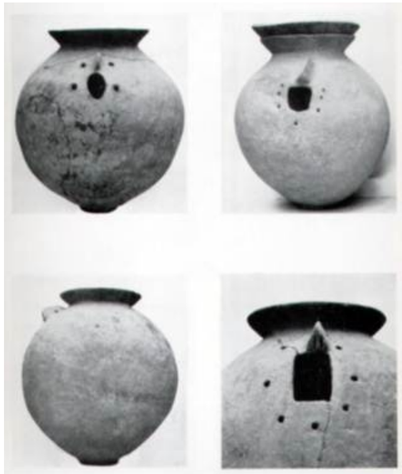



Fig. 4.405 & 4.406: Face-urns from Katelai I (left) and Leobanr I (right) cemetery

Zahir, based on the 562 graves from eight cemeteries from excavated sites, has opined that 70% (392 graves) are inhumations, 27% (151 graves) are post-cremation burials and 3% (15 graves) contain both inhumation and post-cremation burials.[660] Zahir also groups the grave goods into four broad categories, consisting of *"....pottery assemblage, copper/bronze artefacts (along with copper/bronze pins), terracotta spindle-whorls and iron artefacts…a minor group of human and animal figurines."*[661] The burial types has also been re-analysed by Zahir and he proposes five broad classifications as follows:[662]

Type	Characteristics	Examples
Type I	Most elaborate, upper stone construction, upper and lower grave chambers	Timargarha I & II Cemeteries
Type II	Upper and lower grave chambers without upper stone construction.	Timargarha I & II Cemeteries
Type III	Cist graves, normally constructed of four vertical schist slabs; no upper construction and upper chamber.	Timargarha I & II, Kherai and Zarif Karuna cemeteries
Type IV	Dry-stone masonry lining or walls within the lower grave-chamber	Timargarha I & II, Zarif Karuna cemeteries, Katelai-I, Loebanr-I

Type	Characteristics	Examples
Type V	Simple pit dug (either uniformly or irregularly) into the earth	

The shapes noticed from among the various graves are rectangular, circular, oval, square and irregular while the orientation varied from northeast-southwest, north-south, east-west, and a majority of the graves were located on the slopes of hills.[663]

4.5 Summary to Chapter IV

An attempt has been in Chapter 4 in a survey of the sites belonging to Early / pre-early, Mature and Late / post-urban Harappan periods having the presence of burial remains. Thus, thirty sites of the above-mentioned periods along with the general typology of the so-called "Gandhara Grave Culture" sites were surveyed for the understanding of burial practices. The location of the various sites surveyed is given in Fig. 4.407. The sites are spread across the entire area of the Harappan domain, stretching from Sutkagen-dor in the west to Abhaipur in the east and Swat Valley sites in the north to Lothal in the south. The general survey indicates the predominance of extended inhumations as a norm during the Mature Harappan period only. The burial practice normally noticed during the formative stages of the Harappan Culture is flexed inhumations in utero position, either to the right or left, the latter being predominant. Another burial custom prevalent during the period discussed is the post-cremation urn burials which continues even up to the Cemetery H period at Harappa. The typologies of fractional, cremation and secondary burial customs are observed even during the formative stages of the culture.

Another noteworthy deviance in terms of construction of tombs and burials is from the Kachchh region, where the stone slabs were used for a variety of constructions. The slabs were used to construct cist type burials with cairn packing on the top at Dholavira. At Dholavira and Surkodata are observed several burial types and customs otherwise not present in other parts of the Harappan domain. The prevalence of several modes of disposal of dead from this region all present during the same cultural horizon is remarkable in terms of social fabric of the contemporary society. This may indicate

the co-existence of several groups of population with different traditions and followings which is reflected in the burials.

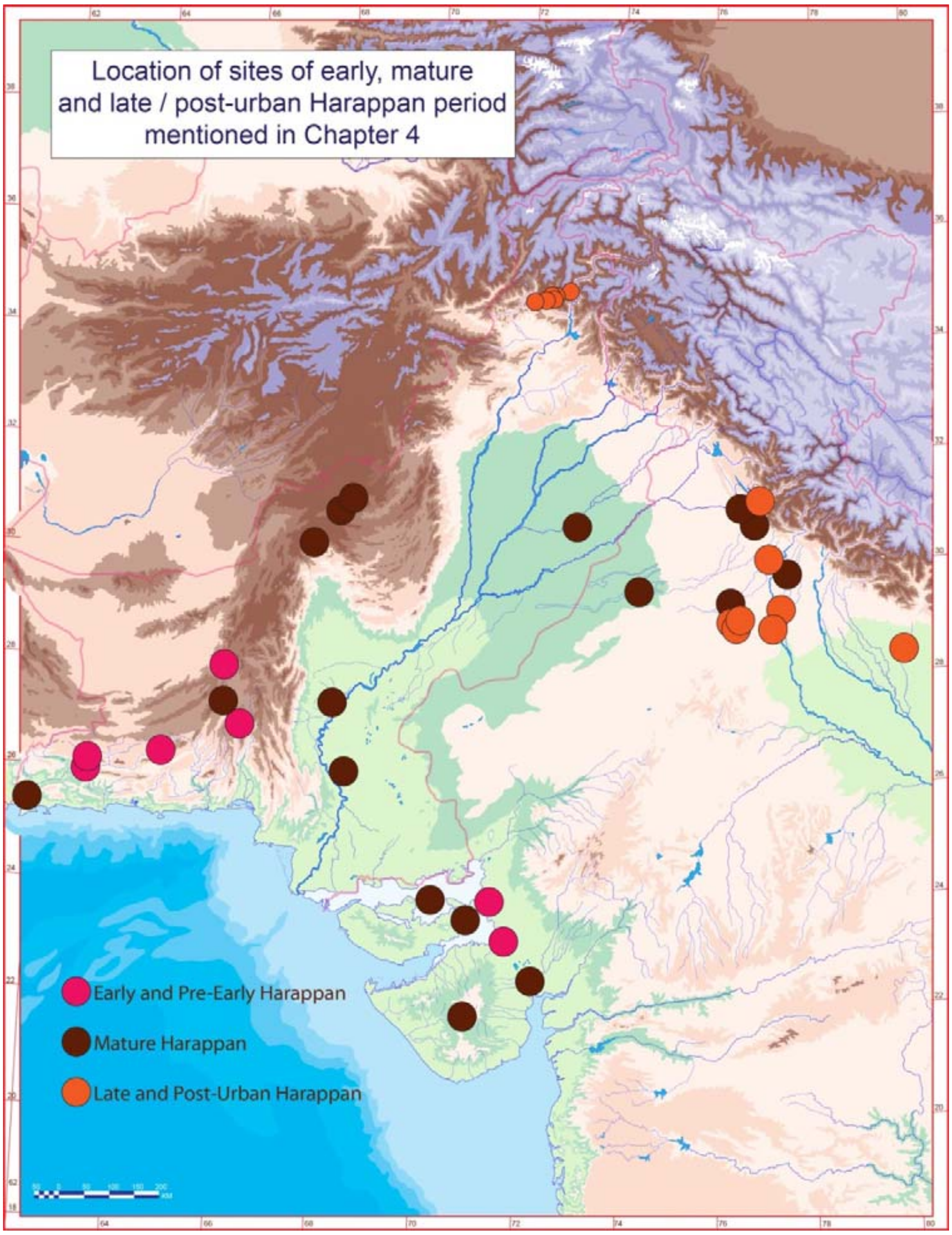


Fig. 4.407: Location of Early, Mature and Late / Post-urban Harappan periods with burial remains mentioned in Chapter 4

The presence of post-cremation urn burials from Harappa, Mohenjo-daro and Chanhu-daro along with several sites of Baluchistan is also an indicator of existence of a group of people with different traditions and customs. Another site, which shows co-existence of different burial customs, is Kalibangan, which exhibit extended inhumation

along with pot and pit burials. Thus, it may be observed that even though the extended inhumation type of burials became predominant during the Mature Harappan period, several other customs also prevailed in different regions indicating a diverse population.

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Chapter – 5

Burial Practices as Revealed from Sanauli Excavations

5.1 Geological Setting

As mentioned elsewhere, the chance findings of cultural vestiges at Sanauli led to its detailed excavation by Archaeological Survey of India. In order to understand the context of Sanauli and the other related sites in its vicinity, it is necessary to look into the various aspects like geology, rainfall data, land-use, etc., keeping Sanauli as the focus. The following is a brief on these aspects to place Sanauli in the proper context and setting.

5.1.1 Geology of Indian sub-continent

The geological divisions of Indian sub-continent has been aptly defined and described by Wadia[1], which still holds well. The divisions are reproduced here as follows:

1. *The Triangular plateau of the peninsula, with the island of Ceylon;*
2. *The mountainous region which borders India to the west, north and east, including the countries of Afghanistan, Baluchistan (now in Pakistan), and the hill-tracts of Burma, known as the extra-Peninsula and*
3. *The great Indo-Gangetic Plain of the Punjab and Bengal, separating the two former areas, and extending from the valley of the Indus in Sind to that of Brahmaputra in Assam.*

The divisions described[2] by Krishnan are also similar to above with slight modifications as given below (emphasis added):

*"The **first** is the Peninsula or Peninsular Shield ('shield' being a term used for geologically very old and stable parts of the crust) lying to the south of the plains of the Indus and Ganges river systems. The **second** division comprises these Indo-Gangetic alluvial plains stretching across northern India from Assam and Bengal on the east, through Bihar and Uttar Pradesh, to the Punjab and Sind on the west. The **third** is the Extra-Peninsula, the mountainous region of the mighty Himalayan ranges and their extensions into Baluchistan on the one hand and Burma and Arakan on the other."*

5.1.2 Peninsular India

Of the above geological divisions of Indian sub-continent, the **Peninsular India** is the oldest and geologically ancient rocks of diverse origin, its mountains are of the relict type and survival of harder masses of rock that have survived weathering and removal through various agents of erosion.[3] The sediments of the pre-Cambrian and later period and the *'horizontally bedded lavas of the Deccan trap formation'* overlie the oldest rocks of Peninsular India.[4] The coastal regions are mainly characterised by the Mesozoic and Tertiary sediments.[5]

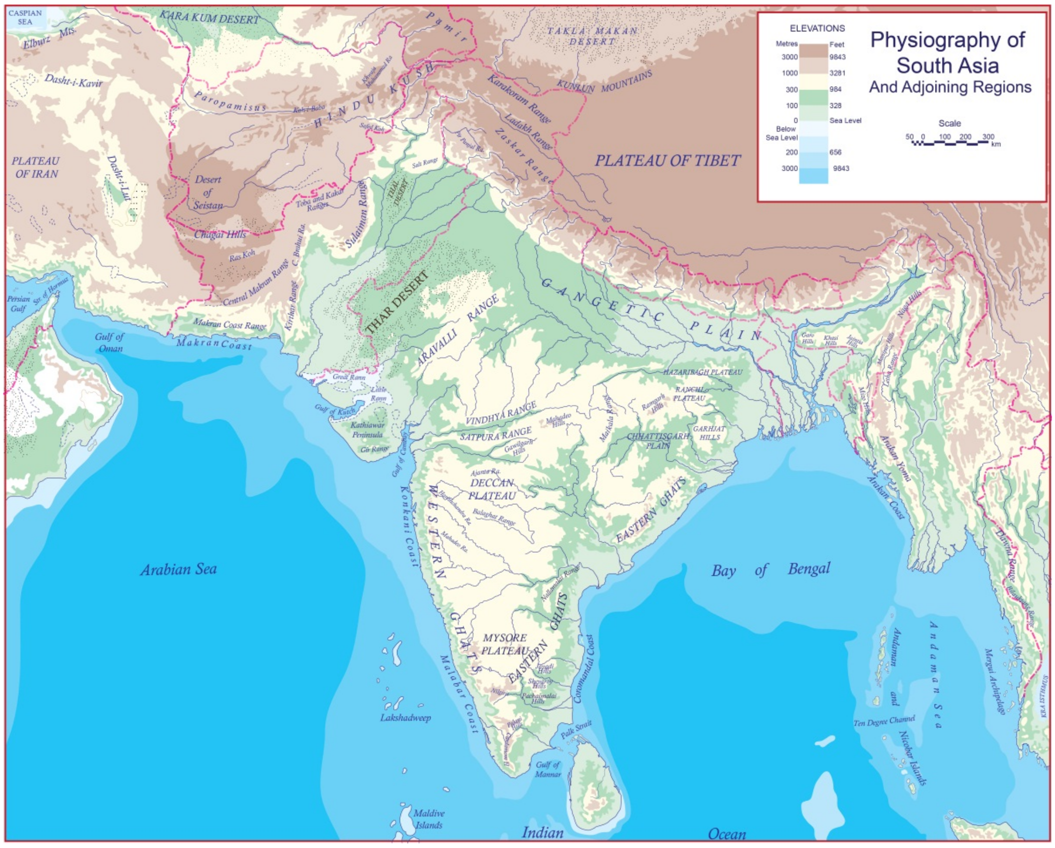


Fig. 5.1: Physiography of South Asia and adjoining areas

The mountain regions of Peninsular India are the Western Ghats, the Eastern Ghats, the Vindhyan Mountains, the Satpura Mountains, the Rajmahal Hills and the Aravalli Mountains. The main rivers of the Peninsular India are Damodar, Subarnarekha, Brahmani, Mahanadi, Godavari, Krishna, Pennar, Cauvery (Kavery), Tambraparni, Narmada, Tapi (Tapti), Luni (Lavanavari), Banas, Sabarmati, Mahi. The chief waterfalls in this region are Jog falls on River Sharavati, Sivasamudram falls on River Cauvery, Pykara falls in Nilgiri Hills, Gokak falls on River Gokak, Yenna falls in Mahabaleshwar, Behar falls on River Tons, Dhuandhara falls near Jabalpur. Among the major rivers, only Tapi and Narmada flows towards the west

and joins Arabian Sea while the rest flow to the east and join the Bay of Bengal. Even though the courses of the Rivers Tapi and Narmada are separate now, evidence indicates that in the past the River Narmada flowed more towards the southwest and was joined by Tapi.[6] The rivers of the Peninsular India are mostly rain fed and are active only during the southwest monsoon, mainly from July to October. The rivers are also active in their upper reaches where they erode the rocky bed while they build deltas near the mouth.[7]

The main lakes of this region are Pulicat, Colair (Kolleru), Chilka, Sambhar, salt lakes of Rajasthan like Didwana, Pachbadra, Chhapar, Lunkaransar, Lonar, Manchhar, Lakes on the Potwar Plateau like Son-Sakesar, Kalar Kahar, Khabaki Kahar, Khotaka Kahar, Jalar Kahar; Rann of Kutch, alkaline lakes in Sind known as Dhands.[8]

5.1.3 Extra-Peninsular Region

The **extra-Peninsular region** is composed of both ancient rocks, as well as sediments constantly deposited since Cambrian to early Tertiary, which was largely altered and modified, compressed, over thrust and elevated into dry land only since the end of Mesozoic period onwards.[9] The mountain ranges of the extra-Peninsular region, which surround India – Pakistan towards the north, northwest, northeast are formed due to tectonics during the Tertiary.[10] The mountain ranges are in the form of circular arcs, with the convex arc towards the peninsula, and among them the Himalayan and Burmese arcs are found to be greater radius.[11] The convexity of the Himalayan arc has been attributed to the thrusting movement of crust waves from the north against the Peninsular India and the resistance created therein along with two minor obstacles in the form of Salt Range in northwest and Assam Range in the northeast.[12] The Himalayas extend over a distance of about 2400 km in the form of a smooth sweep from Kashmir to Assam.

The Himalayan Ranges is classified on the basis of both geographical as well as geological considerations. The divisions based on geographical reasons are (i) the Great Himalayas, the average height of which is around 6100 m; (ii) the Lesser Himalayas with an average height ranging from 3650 to 4570 m and (iii) the Outer Himalayas or the Siwalik Ranges which extend between the lesser Himalayas and the plains with an average height of 910 – 1220 m.[13] The geological basis led to the classification of the Himalayas into three broad stratigraphical belts or zones.[14] They are (i) the Northern or Tibetan Zone lying behind the line of highest elevation

and of Palaeozoic – Eocene age; (ii) the Central or Himalayan Zone comprising most of the Lesser / Middle Himalayas and Great Himalayas and of very ancient (*Purana)* age and (iii) the Outer or Sub-Himalayan Zone corresponding to Siwalik ranges and of entirely Tertiary / principally Upper Tertiary age.[15] The various geographical features and ranges in the north are the Tibetan Plateau, Karakoram ranges, Kailash and Ladakh ranges, Zanskar ranges, Pir Panjal ranges, while in the east are the ranges of Hindu-kush, Salt range, Suleiman, Bugti and Kirthar and in the east are the ranges of Assam, Manipur, Arakan Yoma and Tenassarim. The Himalayas is also home to many glaciers, the most prominent among them being Siachen (72 km), Baltoro (58 km), Gangotri (26 km), etc.

The Himalayas contribute to a great extent on the drainage pattern of the Indo-Gangetic plain, the rivers are fed largely from the melting glaciers and also from important streams and rains. Thus the Himalayas is the origin for at least twenty important and major rivers, namely the Indus (Sindhu), Jhelum (Vitasta), Chenab (Asikni or Chandrabhaga), Ravi (Parushni or Iravati), Beas (Vipasa or Argikiya), Sutlej (Satadru or Satudri), Sarasvati / Ghaggar / Hakra, Brahmaputra Ganges, Yamuna, Ramganaga, Kali (Kaliganga or Sarda), Karnali, Gandak (Sadanira), Kosi (Kausika). The other prominent rivers of extra-peninsular region are Chambal, Sind, Betwa (Vetravati), Ken (Karnavati), Southern Tons (Tamasa), Sone (Swarna nadi), Mahananda. The prominent rivers of the Brahmaputra system are Raidak, Sankosh, Manas, Subansiri, Dhansiri, Torsa, Tista, Jamuna or Janai, Meghna, Feni and Surma. The features like fresh-water and estuarine deposits belonging to Mio-Pliocene Age borders the southern fringe of extra-Peninsular region which were formed due to the erosional activities of rising Himalayas.[16]

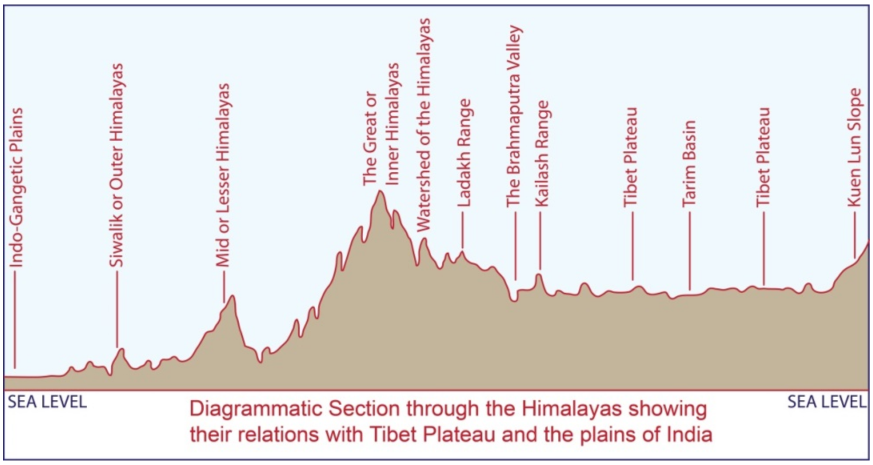


Fig. 5.2: Diagrammatic section through the Himalayas showing their relations with Tibet plateau and the plains of India (*after Wadia, D.N.)*

The extra-Peninsular region is also home to several lakes, many of them are found in Tibetan plateau, which were formed due to the obstruction caused by glacial moraines in river valleys.[17] The prominent and important lakes in Tibet are Issik-Kul (5200 km^2), Manasarovar (500 km^2), Rakshas (360 km^2), Yamdrok (870 km^2), Gunchu (100 km^2), Trigu (130 km^2). The other important lakes within the Himalayan ranges are Tso-Morari, Naini Tal, Khewan Tal, Wular, Dal, etc. While most of the lakes of Himalayan range are of tectonic origin, the lakes of Kumaon region could have originated due to subsidence of floor enhanced by soluble underlying calcareous rocks.[18]

5.1.4 Indo-Gangetic Plains

The **Indo-Gangetic plains** are a recent phenomenon belonging to Pleistocene and Recent consisting of features like layers of sand, clays and occasional organic debris (peat-beds) which fill up a deep depression between the first two units.[19] The alluvial plains of the Indus and Ganges River are deposits borne down from the Himalayas consisting of layers and layers of river-clays and silts.[20] The alluvium covers an estimated area of over 850,000 sq. km while the width varies from 482 km in the western region to 145 km in the east. The alluvium covers a deep depression between the Peninsular India and northern mountain ranges due to various factors and tectonic movements.

It has been estimated that the basement surface of the deep basin dips northwards at an average angle of $1^0 – 3^0$, while the base is irregular and might contain hills and valleys.[21] The thickness of the alluvium is estimated at an average of 7000 m with the deepest portion lying within few km near the foot of the Himalayas and gradually rising towards south. The alluvium attains the highest elevation of around 274 m MSL in the tract located between Saharanpur, Ambala and Ludhiana. This elevated tract of land thus serves as the watershed dividing the two major drainages, the Ganges system in the east and Indus and rivers of Punjab in the west.

The Pleistocene and recent deposits of the Indo-Gangetic plains are nearly a 1000 m in thickness and composed of gravels, sands and clays along with remains of plants and animals.[22] Aquifers are formed in the sand and gravel deposits.

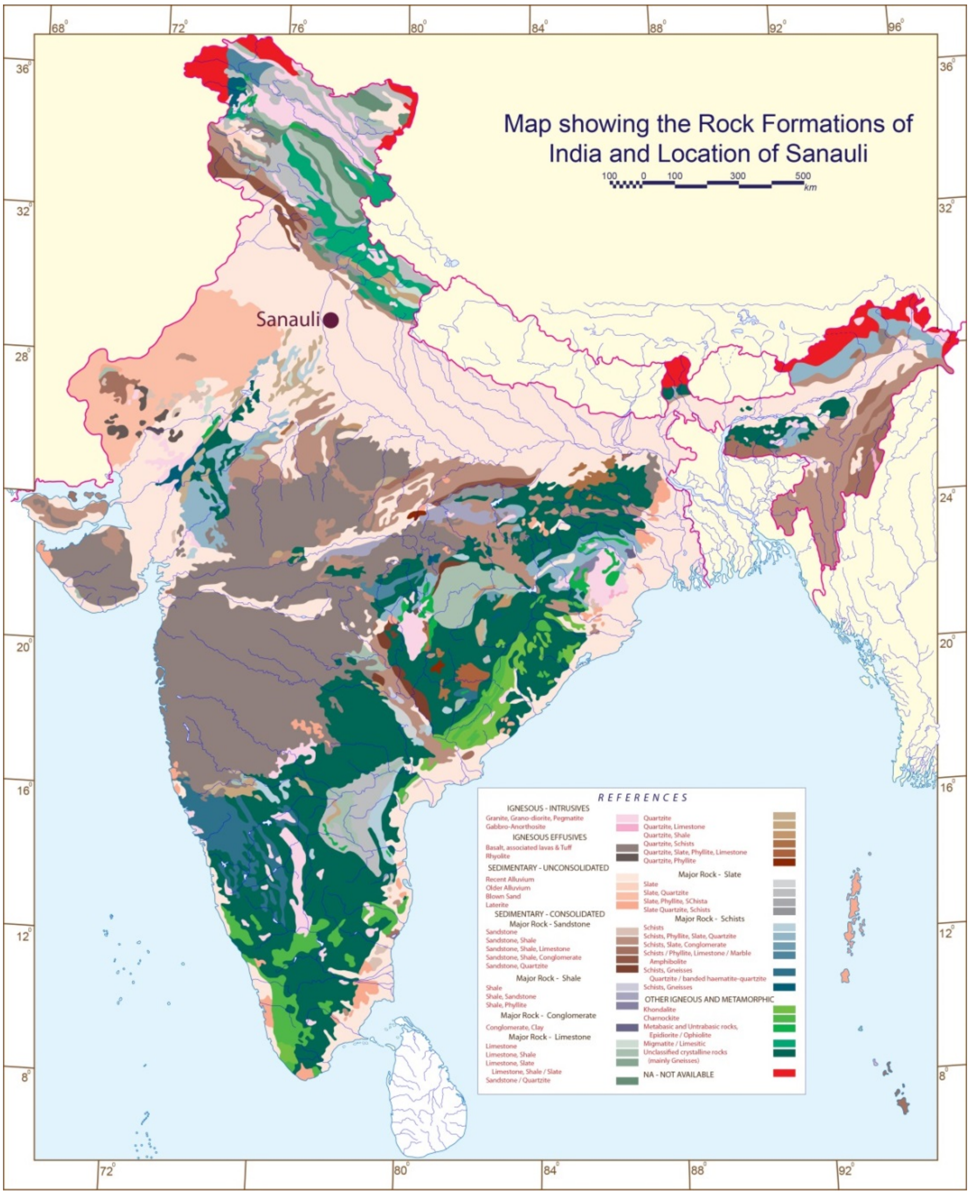


Fig. 5.3: Map showing the rock formation of India and location of Sanauli

The alluvium can be classified into the older (*Bhangar* in the Ganges valley) and newer (*Khadar* in the Punjab). The older alluvium belongs to middle to upper Pleistocene and is in the form of slightly elevated terraces, located generally above flood level and cut through the rivers. It is also characterised by dark colour and rich in concretions and nodules of impure calcium carbonate known locally as *kankar*, the latter consisting of shapes of all sizes from small grains to large lumps.[23] The older alluvium also has the fossil remains of faunal species like Rhinoceros, Hippopotamus, Palaeoloxoden, Elephus and Equus. The newer alluvium belongs to upper Pleistocene to recent in age and is characterised by light colour and poor in calcareous matter. This alluvium has lenticular beds of sand, gravel and peat beds.[24] The Indo-Gangetic plain is the scene of human activity and a large number of sites

belonging to prehistoric to recent times are located. It is also true in the case of the site under study, Sanauli which is located in the Ganga – Yamuna *doab*.

5.1.5 Geological Formations of Harappan Region

The accompanying geological map of the Harappan region shows the various geological formations vis-à-vis the location of five major Harappan sites and Sanauli. The different geological ages and epochs to which the formations belong is clearly shown in the map. The Indo-Gangetic alluvium occupy most of the plains in the north, northwest and west along the major rivers which is of Quaternary period (2.58 mya), while the peninsular part is covered by the Deccan Trap belonging to the Cretaceous period (145 – 70 mya). The details regarding the alluvium has been dealt above under 5.1.4 and hence not repeated here.

5.1.5.1 Deccan Trap

Deccan 'Trap' is a part of massive volcanic eruption now estimated to spread over an area of 3.2 lakh square km in most part of Maharashtra, Gujarat, Karnataka and also in Madhya Pradesh. The volcanic eruption belongs to upper Cretaceous in age and the thickness varies from 10,000 feet near Mumbai to 100 – 200 feet in Sindh, the northern limit.[25] The average thickness of individual lava flows is around 50 feet while the thickness has been noticed even up to 50 feet. The individual lava flows are often separated by thin layers of ash, scoriae, green earth and also by sedimentary beds, which are termed as 'inter-trappean' beds.[26]

The composition of the trap is undifferentiated from one place to another and the only variation is observed in colour, which varies from greyish-green tint to perfectly black and its various shades.[27] The flows which are more acidic in composition have colours of rich brown or buff while the red and pink tints are uncommon.[28] The texture varies from "*……fine-textured crypto-crystalline, almost vitreous anamesite, through all gradations of coarseness, to a coarsely crystalline dolerite*".[29] The rock is also *"….often vesicular and scoraceous the amygdaloidal cavities being filled up by numerous secondary minerals like calcite, quartz and zeolites"*.[30]

5.1.5.2 Other geological formations

The present geography of the Harappan region is also marked by the presence of other geological formations like the deserts, loess, Rann of Kachcha, etc. A brief of some of the formations are given below in order to understand the ancient

geography as well as to estimate the changes occurred since the demise of the Harappans.

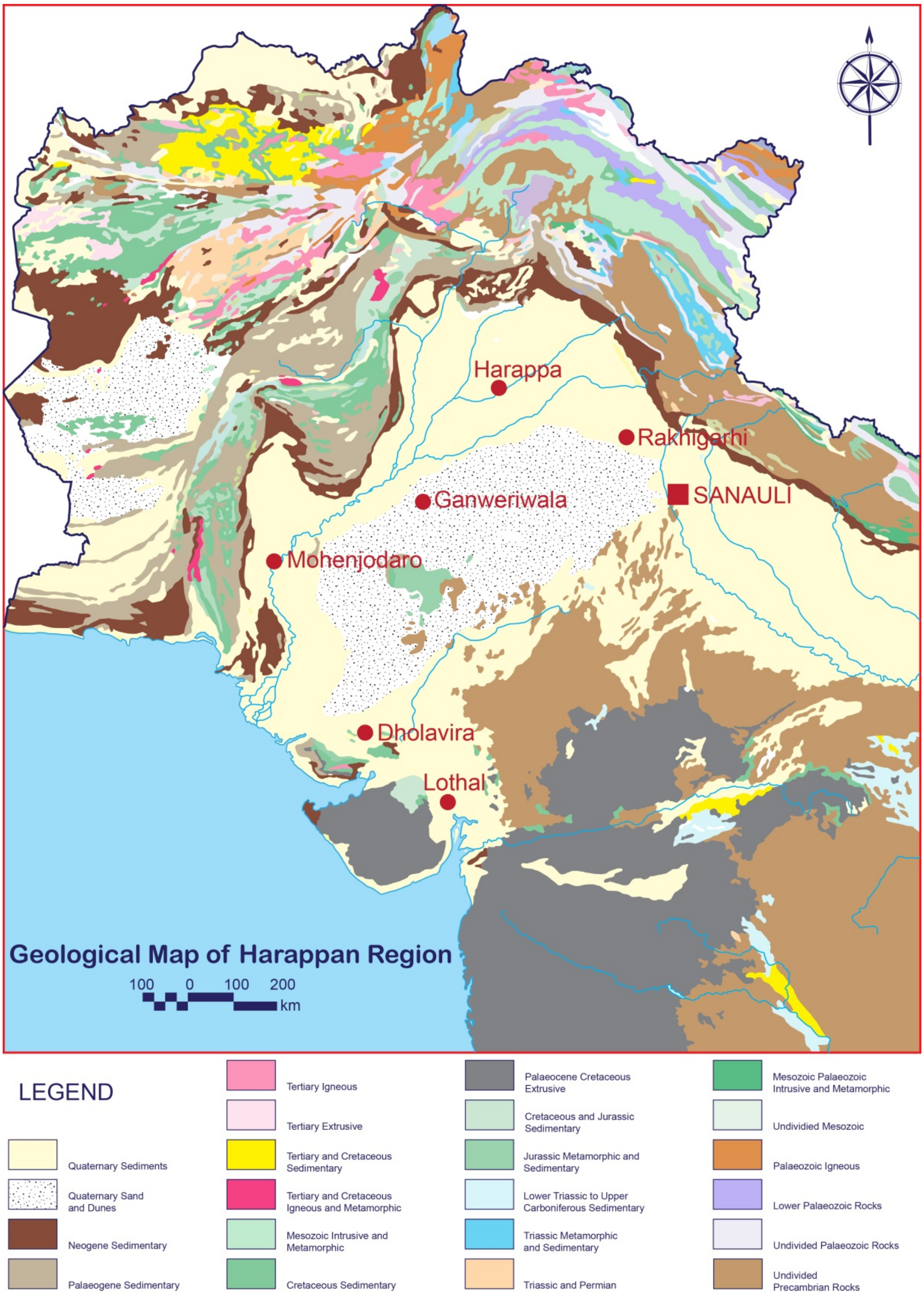


Fig. 5.4: Map showing the geological formations of Harappan region and Sanauli

Thar or Rajputana Desert

Thar Desert also known as Rajputana desert sometimes is a prominent expanse of wind-blown sand with a present geographical extent starting from basin of Indus in west to Aravallis in east; from the south of River Sutlej to 25^0 N latitude

thereby covering an area of nearly 650 km long and 160 km wide. The Thar Desert also belongs to the same age or later than that of the alluvium described under 5.1.4. The desert sand is not a continuous and constant flat surface, but marked by various undulations marked by the rocky projections of low elevation and also a series of ridges, dunes and hillocks created by the wind action.[31] The rocky outcrops rising above the desert sand are the older and ancient formations. The sand ridges are classified mainly into transverse and longitudinal ones, formed mainly due to wind action, the former where the wind action is abated and the latter is formed where the wind action is great. The GSI, however, classifies the sand dunes into five types based on the variable sizes, viz., *(i) crescentic, (ii) linear, (iii) star, (iv) dome and (v) parabolic dune*, which may be simple, compound or complex ones.[32] The wind action also sculpts the sand ridges and dunes in such a manner that in the direction of the wind the slope of ridge is gentle and smooth while in the opposite direction it is more abrupt and steep.[33] It is also estimated that the ridges and dunes are slowly approaching inland and in the southern portion of the desert, they are much larger in size and often reaching to the height of 121 – 152 m high hillocks. The composition of desert sand is mainly of quartz in well-rounded grains, in addition to feldspar and hornblende grains in lesser quantities along with a good quantity of calcareous grains.[34]

The origin of the Thar desert is attributed to several reasons, the main among them being aridity, wind-blown sand from the Rann of Kachchh, coastal areas and delta of River Indus, less precipitation in this area during the southwest monsoon, thereby accumulation of the wind-blown sand continuously without being carried away by the rains, even though the theory of sand blown from coastal areas is slowly discarded now. Further, the large diurnal variations in the temperature added to scanty rainfall also accelerate the disintegration of rocks and accumulation of sand, which is transported by the wind action.

The origin is also attributed to the climatic conditions starting from the mid-Pleistocene with the establishment of monsoon system over the Indian sub-continent and the rising of Aravallis towards the east creating a rain shadow region to the west.[35] It is also emphasized by the geologists that the desert conditions have drastically increased over a period of 3000 – 4000 years and the prevalent favourable conditions during early Historic Period, presence of wild animals like elephants in Rajasthan even during Historic Period have often cited as evidence to prove this.[36]

Ranns of Kachchh

The origin of the Rann of Kachchh is attributed to the geological processes of Pleistocene age, which is characterised by a vast saline marshy plain dry during half of the year and wet during the other half.[37] The Great Rann and Little Rann both constitute a unique geomorphological feature that occupies roughly an area of 22,000 km^2 and are divisible into five geomorphological units, viz., *(i) Bet Zone, (ii) Linear Trench Zone, (iii) Banni Plain, (iv) Great Barren Zone and (v) Little Rann of Kachchh*.[38] The Great Rann of Kachchh comprises of five geomorphological formations wherein the Bet Zone displays various features like slightly uplifted area marked in the north by Allah Bund, complex network of islands and inlet channels, indications of a wetter phase and remnants of an ancient deltas.[39] The Linear Trench Zone consists of a depression starting from Kori Creek up to Kuar Bet and characterised by marine inundation along the western portion near Kori Creek, high tides only during monsoon period influences the central portion.[40] This depression also lies roughly between the Banni plain and Allah Bund.

The Great Barren Zone is defines as *"…..vast shallow saucer shaped depression which to the north merges into the sand dunes of Thar Desert, to the south it abuts against the mainland and to the east it rises into the alluvial plains of Banaskantha"*.[41] Towards the east of Great Barren Zone, River Luni and its tributaries drain its waters and hence this zone is under a sheet of water during the early phases of monsoon rains.[42] The Little Rann of Kachchh is another feature which extends in a northeast – southwest direction and actually an extension of Gulf of Kachchh during high sea levels.[43] Both the Great and Little Ranns have been considered as very good examples of sedimentation processes occurred during Holocene times, the former accentuated by the drainage of Indus drainage basins.[44] The evolution and drying up of the Great Rann of Kachchh has been attributed to the tectonic activities of the past. It has also been estimated that on an average of 2 mm of silt accumulates in the Ranns per year and around 2000 B.P. the Rann was inundated with 4 m of water.[45] The Banni Plain is 3 – 10 m raised mud flat land between the mainland of Kachchh and Great Rann which consists of a gradientless and saline grassland spread over an area of 3000 km^2.[46]

Loess

Loess is a large stretch of wind-blown dust accumulated during the Pleistocene consisting of sandy to clayey composition and found in areas like

Punjab, Kashmir, Sindh and Baluchistan. The colour of loess deposits vary from fine grained buff or grey with very little signs of stratification. The loess deposits have been found in various latitudes and very well delineated in the Potwar plateau of Salt Range and Thal Chotiali in Baluchistan.[47]

The origin of the loess deposits has been variously attributed to the action of strong wind action carrying the fine deposits of arid regions and continuous droughts.[48] The arid regions and droughts added with strong winds preceding the monsoon periods carry the fine sand and silt from the plains and deposit at higher elevations irrespective of any surface.[49] The irregular distribution of loess deposits led to formation of shallow lakes on the top of Salt Range.[50]

5.2 Geographical Setting of Sanauli

5.2.1 Location

Sanauli or Sadiqpur Sanauli (29^{0} 8' 28" N; 77^{0} 13' 1" E) is located on the Baraut-Chhaprauli road in tehsil Baraut, district Baghpat, western Uttar Pradesh, in the Yamuna basin with Hindon as its nearest tributary. At present, the river Yamuna flows at a distance of about 7.2 km west to the village. The present contours of the site and succession of soil deposits indicate that the river may have flowed closer to the site during the 3^{rd} millennium BCE. Presently, there is a big depression, close to the excavated site, to its northwest, which was originally a big natural water reservoir, called locally *johad*. If appears that it was an ox-bow lake left behind when the river shifted its course. In any case, proximity of such a regular water source to the cemetery site is a well-known feature of ancient settlement pattern.

In order to understand the location and environs of the site, a brief of the relevant features like geology, drainage pattern, flora, fauna, soil conditions, land use, etc., are given in the following pages.

5.2.1.1 Location of district Baghpat and Baraut

As mentioned above, the find spot of the burial remains at an agricultural filed near the village Sadiqpur Sanauli, popularly known as Sanauli is located in tehsil Baraut, district Baghpat in Uttar Pradesh. The find spot of the cultural remains is approximately 300 m to the southeast of the present village and the village falls in the Yamuna – Hindon *doab* which houses a large number of Late / Post-urban Harappan sites. The close cluster of a large number of Late / Post-urban Harappan sites clearly indicates the large-scale occupation of this area during the second

millennium BCE. The state of Uttar Pradesh ranks one among the largest states of India, and the district of Baghpat is located on the western-most part of the state.

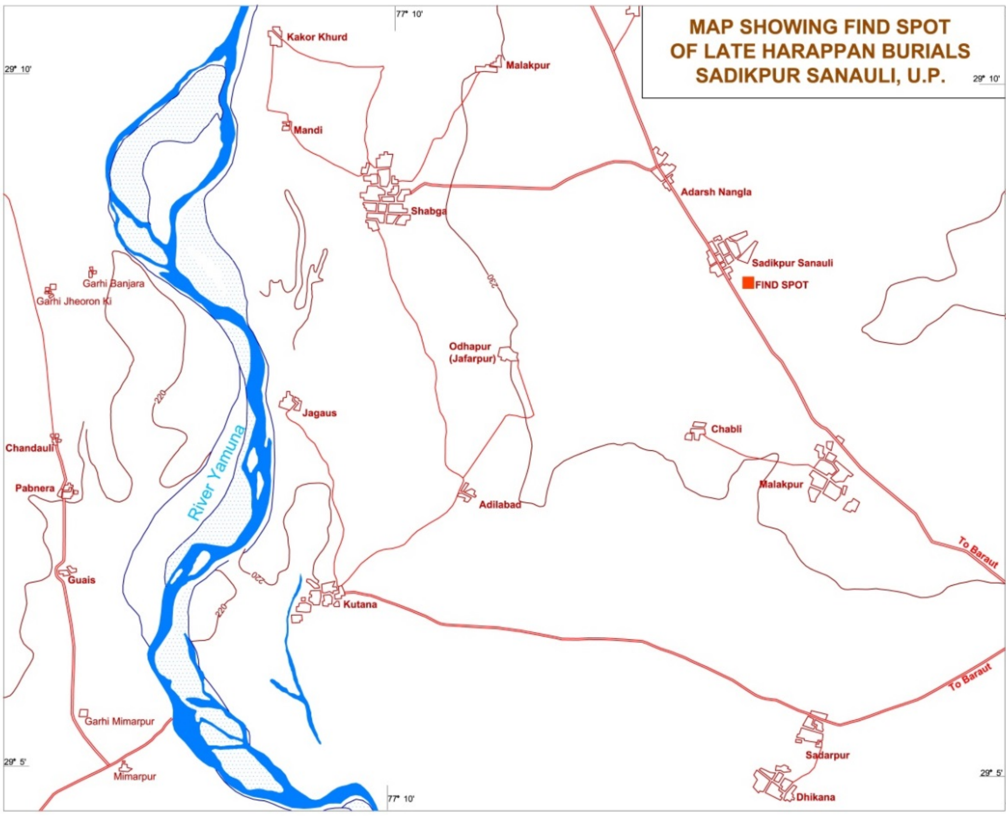


Fig. 5.5: Map showing the find spot of late Harappan burials, Sadiqpur Sanauli or Sanauli, Uttar Pradesh

The district Baghpat is one among the 75 districts in Uttar Pradesh and carved out in 1997 from the district Meerut in which it was a tehsil previously. The district is surrounded by the district Meerut in the east; district Ghaziabad in the south; district Muzaffarnagar in the north and river Yamuna and district Rohtak in the west. The River Yamuna marks the western boundary of the district whereas the River Hindon marks its eastern boundary. The district Baghpat is divided into three sub-divisions known as tehsils and consists of Baraut, Baghpat and Kekda. Sanauli is located in the tehsil Baraut and on the Baraut – Chhaprauli road.

The district Baghpat covers an area of 1321 km^2 and has a population of 11,63,991 as per the 2011 census.[51] The population of the district grew at a rate of 11.87% during the decade ending in 2011 with a sex ratio of 858 females for every 1000 males. The density of population of district Baghpat is 986 / km^2. Baraut is a tehsil in the district Baghpat and is bounded by tehsil Chhaprauli in the north and east; tehsil Baghpat in the south and River Yamuna and district Rohtak in the west.

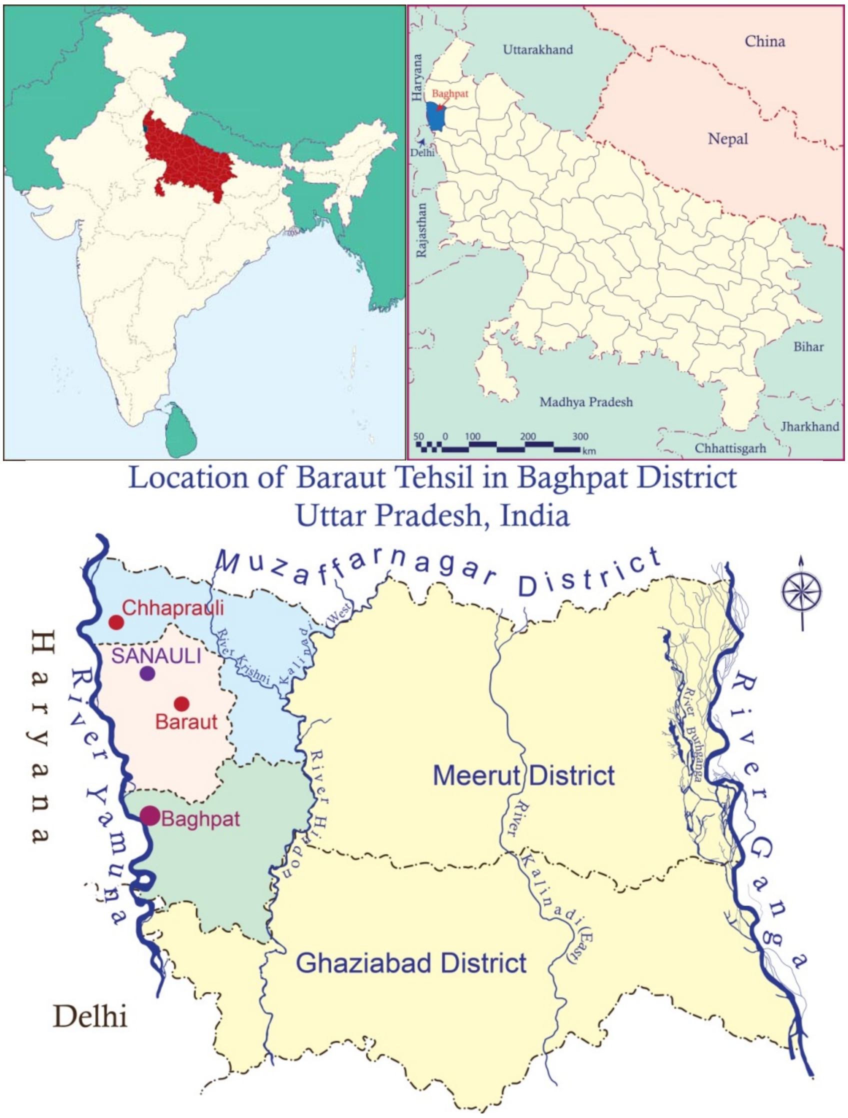


Fig. 5.6: Map showing the location of tehsil Baraut in district Baghpat, Uttar Pradesh, India

The tehsil headquarters of Baraut is roughly 56 km northeast of the national capital of Delhi. According to the 2011 census the population of tehsil Baraut is 1,02,733 of which 53% are males and the remaining 47% are females.[52] Baraut has also a distinction of comparatively higher literacy rate of 77.98% against the national average of 74.07%.

5.2.1.2 Soil Types

Soil forming process is a complex and slow transformation one, which varies according to the time and parent materials, topographical relief, vegetation and climate. The following are the orders of soil that can be classified[53] as per the soil taxonomy based on the soil formation processes in different climatic conditions:

Order	Description
ENTISOL	Very weakly developed soil with surface rooting and litter over weathered sediment with relict bedding or weathered igneous or metamorphic rock with relict crystals
INCEPTISOL	Weakly developed soil with surface rooting and litter over somewhat weathered

clayey or calcareous subsurface

ANDISOL Soil composed of volcanic ash with low bulk density and high fertility

HISTOSOL Peat over rooted grey clay

SPODOSOL Quartz rich clay poor soil with bleached subsurface above a red black iron aluminia organic cemented zone

VERTISOL Very clayey profile with common swelling clay (smectite), laterally variable thickness of surface, and strongly slicken sided subsurface

MOLLISOL Grassland soil with thick crumb textured carbon rich surface

GELISOL Permafrost soil with frost heave and other periglacial features

ARIDISOL Desert soil with a shallow subsurface accumulation of pedogenic carbonate and soluble salts

ALFISOL Fertile forest soil with clay enriched subsurface and high amounts of Mg, Ca, Na, and K

ULTISOL Infertile forest soil with clay enriched subsurface and low amounts of Mg, Ca, Na, and K

OXISOL Deeply weathered tropical soil, often highly ferruginous and aluminous, but with very low amounts of Mg, Ca, Na, and K

The soil map prepared by the National Atlas & Thematic Mapping Organisation (NATMO) based on the above soil typologies for the region with Sanauli as the focus is given below in order to understand its nature and setting.

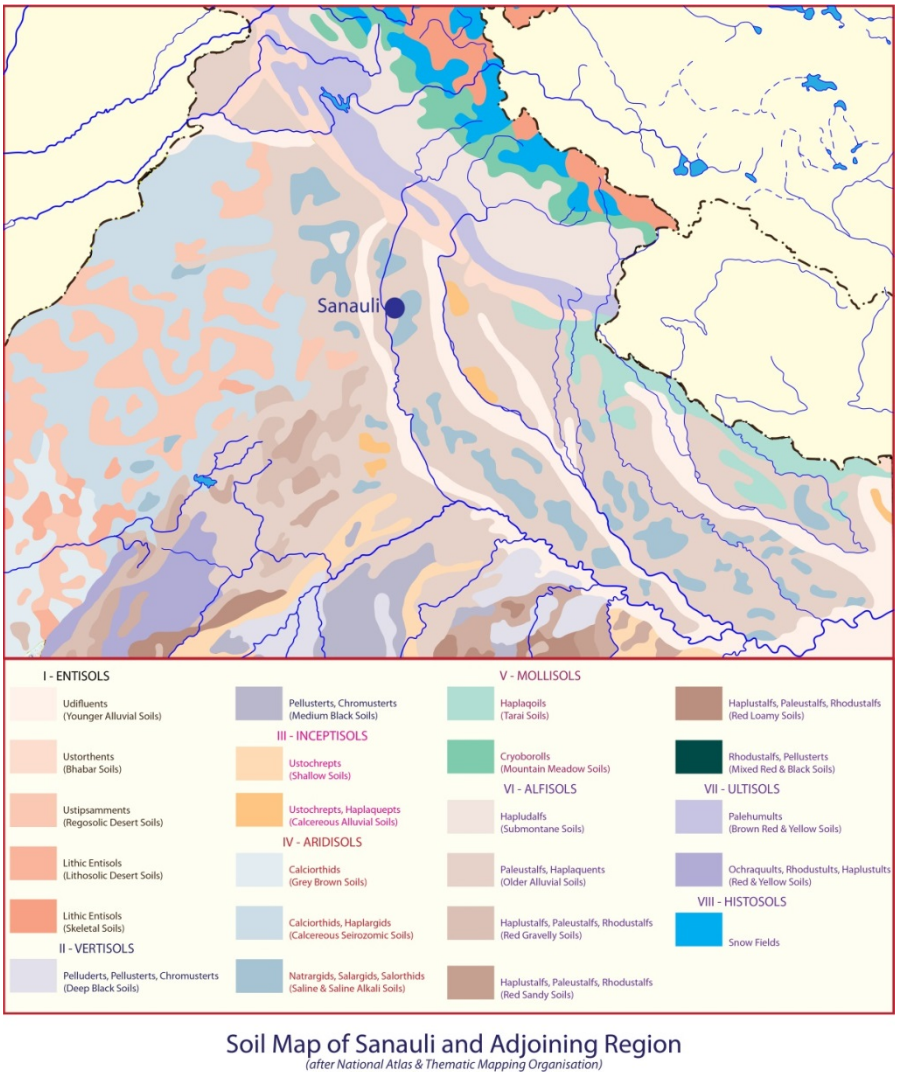
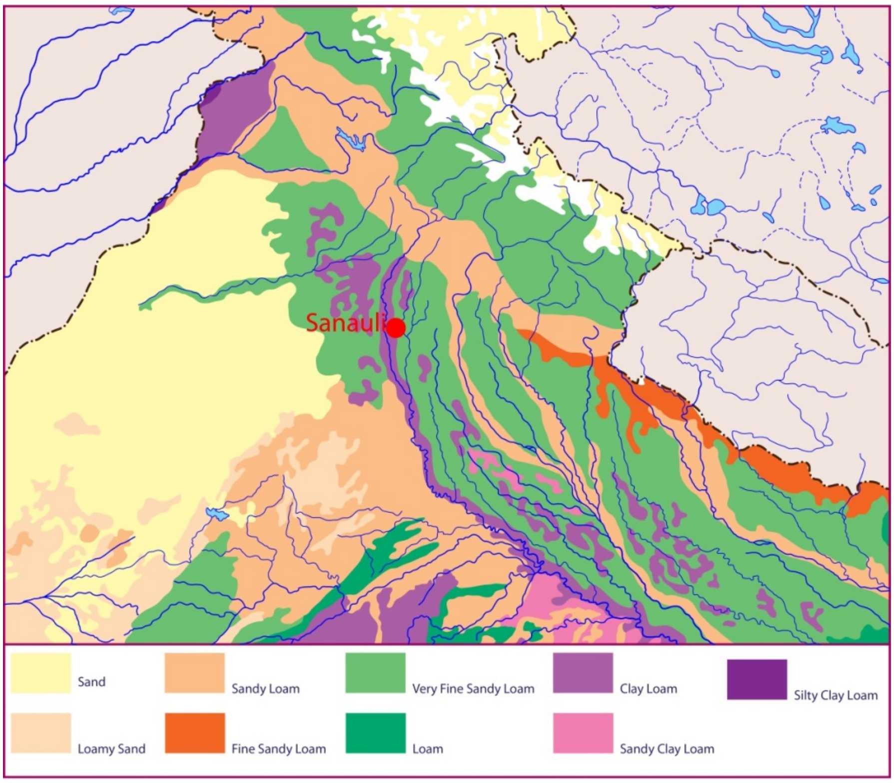


Fig. 5.7: Map showing the soil map of Sanauli and adjoining region

The above map indicates that the soil type in and around Sanauli is paleustalfs & haplaquents (older alluvial soils) and patches of natragids, salargids & salorthids (saline & saline alkali soils). It may also be inferred that the region around Sanauli is characterised by both the younger and older alluvial soils interspersed with the saline & saline alkali soils, the latter may of a recent phenomenon. The soil map along with the soil texture map of the region around Sanauli may be useful in better understanding of the setting, which is given below.

5.2.1.3 Soil Texture

The major soil textures can be classified into different types such as sand, silt, clay and loam. **Sand** is chiefly composed of rock and mineral particles ranging in diameter from 0.0625 – 2 mm in size and the most common component of a sand particle is silica (SiO_2). The desert soil and sandy soils are also called as ***bhur***.



Soil Texture Map of Sanauli and Adjoining Region
(after National Atlas & Thematic Map Organisation)

Fig. 5.8: Map showing the drainage pattern in and around Sanauli

Silt is a type of soil, which varies in size between sand and clay. It may occur as a soil, suspended in a water body, or settled at the bottom of a water body. **Clay** refers to a combination of one or more clay minerals composed of metal oxides and organic matter. **Loam** can be defined as a type of soil in which the sand, silt and clay are in a 40-40-20 % concentration. Thus, the above map prepared by NATMO and modified to focus on the location of Sanauli in the context of soil

texture shows clearly that the site is in the zone of very fine sandy loam and clay loam.

The loam type of soil is favourable for irrigational purposes as they are easier to till when compared to clayey soil and contains more nutrients and humus than sandy soils. The soil is characterised by the presence of enough clay that is requisite for storing water and nutrients necessary for optimum plant growth and also enough silt to hold water for plants and gradually transform into clay and release fresh plant nutrients during the course of weathering processes.[54]

Khadar and ***Bhangar*** are locally called categories of soil, which represent new and old alluvium respectively. *Khadar* is a recently deposited alluvium which is very fertile in terms of agricultural purposes, whereas *Bhangar* is an older alluvium and less fertile when compared to *Khadar*.

5.2.1.4 Rainfall Data

The Indian Institute of Tropical Meteorology (IITM) has compiled variations in the rainfall occurring in India for a period from 1813 to 2006.[55] The analysis made by the IITM is for different geographical zones identified originally by NATMO wherein the country was divided into 14 major divisions and 49 sub-divisions / provinces.[56]

Among the various divisions made, the Sanauli and adjoining areas falls under the 'The Northern Plains' consisting of the geographical zones like Punjab Plains, Ganga – Yamuna *Doab*, Rohilkhand Plains and Avadh Plains.

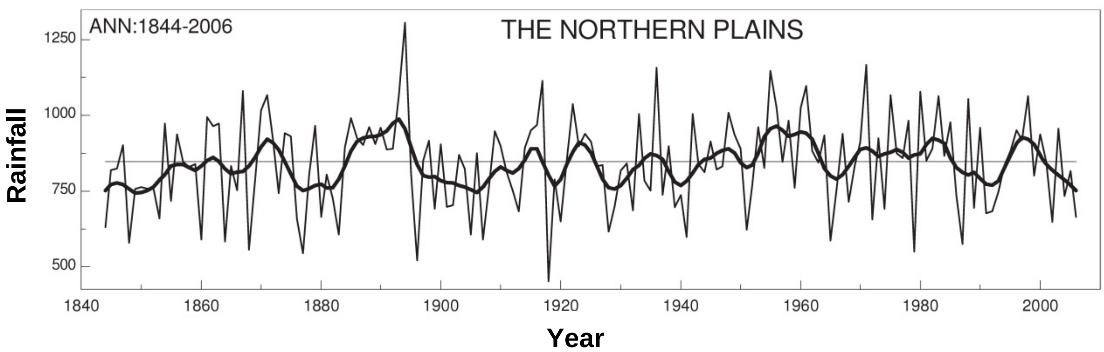


Fig. 5.9: Chart showing the fluctuation in rainfall from 1844 - 2006

The Northern Plains consist of an overall area of 2,91,998 km^2 with a maximum precipitation of 1484.2 mm and an average rainfall of 846.8 mm.[57] The rainfall is distributed into various seasons like winter (4%), summer (4.5%), monsoon (85.3%) and post-monsoon (5.4%) and the annual rainy days consisting of 41.4 days with the rainy season starting from 19th June to 20th September.[58] The

continuous rainfall data could be generated from 1844 onwards to 2006 which shows increase in rainfall for a period from 1844 – 1998 and then followed by a decrease starting from 1999 – 2006.[59]

The rainfall data thus compiled has also indicated that there is a 68.1% decreasing trend in annual rainfall in the Ganga – Yamuna *doab*, while there is a 46.6% decreasing trend in winter rainfall and 73.3% increasing trend in summer rainfall.[60] The above map shows the mean annual precipitation and season of maximum precipitation in the Indian sub-continent. It indicates that the Sanauli and adjoining areas receive precipitation from summer onwards when the monsoon season sets in in the sub-continent.

The various zones shown in the map also indicate the different seasons in which they receive the rainfall and period of maximum precipitation. The district Baghpat generally receives rainfall when both the winds from Bay of Bengal and Arabian Sea meet. The winds of both the systems are weaker when they arrive in this region and hence the rainfall during the monsoon season is often erratic.

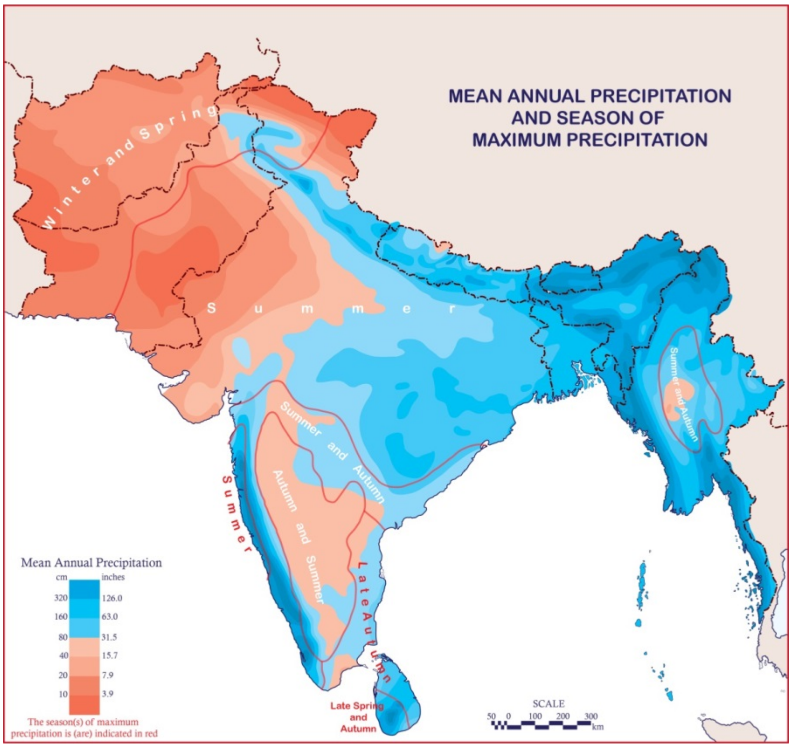
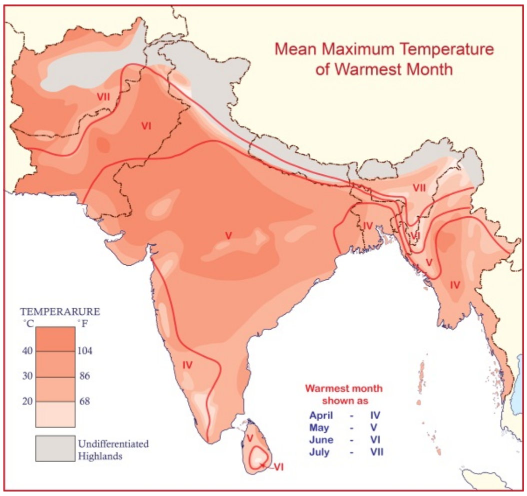


Fig. 5.10: Map showing mean annual precipitation and season of maximum precipitation in the Indian sub-continent

5.2.1.5 Climatic Data

The climatic conditions prevailing in a region along with the rainfall influences the occupation and settlement in order to exploit the natural resources and development of a civilization. The following two figures indicate the mean

maximum temperature of warmest month and the mean minimum temperature of coldest month in the Indian sub-continent. It is clearly evident that the Sanauli region witness the warmest month in May – June with the mean temperature ranging between 40^0 – 50^0 C while the mean minimum temperature ranges between 0^0 - 10^0 C during the month of January. The climate of the district Baghpat is intensely hot during the summer season and severe cold conditions prevail during winter the air condition being of the dry nature of the continental type.[61] The monsoon conditions bring rain, cloudiness and increased humidity.[62] The district is placed under four seasons based on climatological conditions consisting of a hot season from April to June, followed by southwest monsoon, which lasts up until the month of September, and the cold season follows soon which prevails up to March.[63]



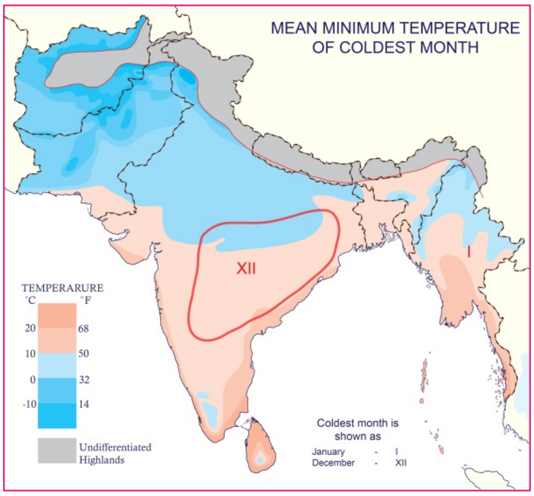


Fig. 5.11: Map showing mean maximum temperature of warmest month (left) and Fig. 5.12: Map showing mean minimum temperature of coldest month (right) in the Indian sub-continent

5.2.1.6 Vegetation Types and Forests

The present vegetation types and forest in the Sanauli and adjoining region is represented in the following map. A general understanding of the forest and vegetation types of the entire Indian sub-continent is also feasible from the map. The map clearly shows that the Ganga – Yamuna *doab* wherein Sanauli is located is devoid of any open or dense forest. There are some patches of scrub vegetation near the Sanauli region; otherwise, the entire region is under agricultural practice. This region is also characterised by B-2 and B-3 types belonging to the dry-tropical and sub-tropical types of vegetation, indicated by deciduous and thorn forest types respectively. The district Baghpat is, however devoid of large-scale vegetation and forest cover and hence typology in terms of botanical nature could not be given.[64]

Flora

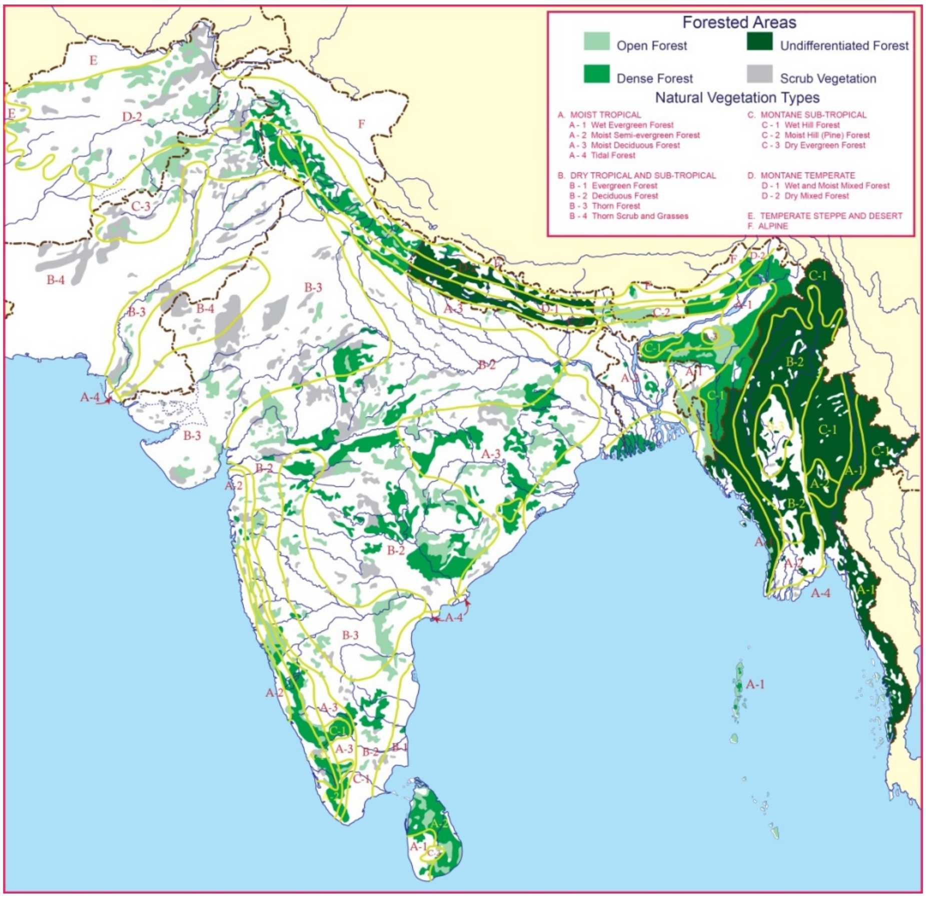


Fig. 5.13: Map showing forested areas and natural vegetation types of India

The general types of trees found in the district are *shisham (Dalbergia sissoo), jamun (Syzygium cumini),* mango *(Mangifera indica), siris (Albizzia lebbeck), imli (Tamarindus indica), and neem (Azadiratcha indica).*[65] A relatively small proportion of waste and barren land in the district is attributed due to the fact that agriculturally it is well developed and various agencies like the Forest Department and *gram samajs* take care of the waste and barren land. The *khadars* of Rivers Yamuna and Hindon along with the adjacent *kholas* (ravined strips) has some considerable vegetation. The *khadars* support vegetation like *jhau* (Tamarix), coarse grasses like *munj* (*Sacoharum munj*), *kans* and *patera (Typha elephantis),* and straggling bushes of *ber (Zizyphys lacorus)*.[66]

Tree plantation of the varieties like *shisham, arru (Alanthus excels), jamun, mahua (Madhuca indica), siris, bahera (Terminalia ballerica), babul (Acaia Arabica)* locally known as *khikar* are also found in thin strips on the banks of eastern Yamuna canal.[67] Even though the district is devoid of a reasonable forest growth, it is compensated by the presence of large grooves. The ornamental tree types found in the grooves consist of *kachnar (Bauhenia variegate), gul mohar (Poniciana regia),*

ashok (Polyalthia longifolia), amaltus (Cassia fistula), eucalyptus and chameli ((Millingtonia hotensis).[68] The other shrubs and bushes that can be seen are *arua (Adatoda vasica), hins (Caparis horrida), panwar (Cassia tora), madar (Calatropis giganta), karaunda (Carissa spinarium), makoh (Zizyphus oenoplia),* while the main varieties of grasses are *munj, kans* and *patera (Typha elephantis).*[69]

5.2.2 Topography and Drainage Pattern

5.2.2.1 Topography

The district Baghpat is more or less a flat alluvial plain with a slight gradient of 0.6 m in the direction of north to south and southeast. The district is also well cultivated and flat plain except some tracts of ravines near the river valleys and *bhur* mounds towards the south.[70] The district overall consists of a fertile tract of soil except some patches of *bhur* soils towards the south and tracts of ravines near the Rivers Yamuna and Hindon. The more or less flat alluvial plain is only marked by the river valleys of varying width, which is low lying when compared to the other portions. The soil has been described overall as productive except some portions along the River Yamuna and southwestern part of the district where the Rivers Yamuna and Hindon tend to merge.[71] The drainage pattern of the district can be described broadly in the Ganga and Yamuna River basins and in the Yamuna – Hindon *doab* in the localised phenomenon. In order to understand the drainage pattern of the Sanauli and adjoining areas it is necessary to understand the overall setting of the river basins, the Yamuna – Hindon *doab* and then the individual rivers and streams.

5.2.2.2 Ganga and Yamuna River Basins

Sanauli is located in the Ganga – Yamuna *doab* in the larger scenario and in the Yamuna – Hindon *doab* in a local one. The entire area is influenced by the drainage pattern of Ganga, Yamuna, Hindon and other smaller rivers. These rivers are also subjected to course changes in the past, which may still continue in the present scenario. The basins represented of Ganga and Yamuna rivers are given below for a better understanding. The major rivers represented in the Ganga basin are Son, Ramganga, Gomti, Sai, Ghandak, Kosi, Ghagra, Kalinadi, while the rivers in the Yamuna basin are Ken, Betwa, Sind, Chambal, Banas, Banganga, Hindon, Tons, etc.

River Ganga

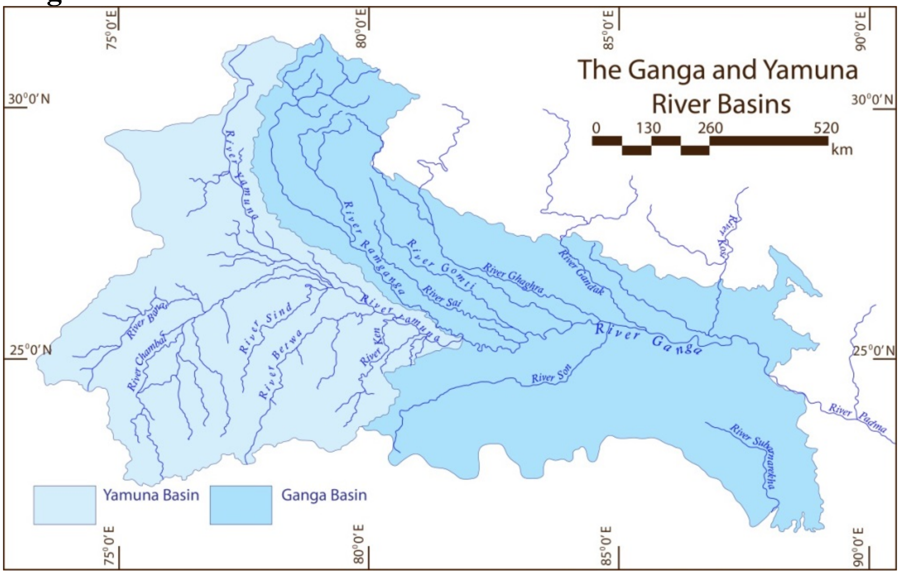


Fig. 5.14: Map showing the Ganga and Yamuna river basins

River Ganga is traditionally associated with the Akash Ganga, the celestial river brought down to the earth by Lord Siva resulting in the severe penance of Bhagiratha, hence the river is called as Bhagirathi in the upper sources immediately after emerging from ice cave of Gaumukh which is the snout of Gaumaukh glacier, which is the generally accepted source of the river, located at an elevation of 3,892 m above MSL. The river emerges from the Himalayas at Sukhi near Rishikesh 250 km from the source, enters the plains at Haridwar after running another 30 km, and emerges into the Indo – Gangetic plains.[72]

The main sources of water for River Ganga are rain, snow melting from the glacier and the large volume of water discharged into it by River Yamuna. The width of the river Ganga at Haridwar reaches to around 750 m due to the heavy volume of water flowing in it. The River Ganga, after running for nearly 1020 km from its source is joined by another major river, Yamuna at Allahabad which contributes a higher volume of water (57.24 billion cum / annum) than it.[73]

River Yamuna

River Yamuna is the major tributary of River Ganga and originates from the Yamunotri glacier near Banderpoonch peak at an elevation of 6,387 m above MSL in Uttarakhand. The river enters into the Indo – Gangetic plains after a travel of 200 km in between several valleys and joined by small streams and rivers like Tons. The river is diverted into Eastern and Western Yamuna Canals at Hathnikund / Tajewala in district Yamunanagar of Haryana for irrigation and drinking water purposes.[74]

The river regains water through a feeder channel from River Som and also groundwater accrual upstream of Kalanaur before it reaches Delhi.[75] The river is joined by its major tributaries like Rivers Hindon, Chambal, Betwa and Ken downstream of Delhi and Agra before it joins River Ganga at Allahabad at a distance of 1400 km from its origin.

The River Yamuna enters the district Baghpat near Tanda in tehsil Chhaprauli and flows all along the western boundary of the district before the boundaries of Delhi and Ghaziabad meet. The river is characterised by considerable variations in the height of its eastern bank and marked by steep and abrupt ridges interspersed with flat patches, which are occupied by large habitations.[76] The area between the river and the banks are often characterised by small low-lying patches, which are frequently flooded during the monsoon season, get a rich deposit of alluvium, and hence utilised for agricultural purposes. The other features of the river in the district is that it takes a bend of several km to the west near places like Chhaprauli, Kotana and Baghpat while at some places the bed of the river is too low and hence only utilised for cultivating melons.[77]

The Yamuna – Hindon *doab*

The area lying between the Yamuna and Hindon rivers forms the *doab* area and includes the entire district Baghpat and parts of district Ghaziabad. The width of the *doab* in the upper part is nearly 25.7 km wherein it reduces to 8 km at the lower reaches when the two rivers merge together. The soil is largely fertile in the Yamuna – Hindon *doab* consisting of a rich and uniform loamy soil which is flanked by poorer soils and broken reliefs all along the rivers, and the quality of soil grading down in a north – south direction.[78] The fertility of the soil in the *doab* is considerably higher in the northern portion wherein towards the south it decreases mostly near the River Yamuna and only supports wild grasses only.[79] As mentioned above, the *doab* is bounded on the east by the River Hindon and by a high ridge on the west, which separates River Yamuna *khadar* from the uplands.[80] This high ridge portion is generally poor in fertility and the terrain in interspersed and broken by small ravines intermittently.[81] The southern portion of the *doab* is dominated by the *khadars* Yamuna and Hindon Rivers, which have numerous shallow depressions.[82] The *khadar* portion is also wider in the south when compared to the northern portion of the *doab*.

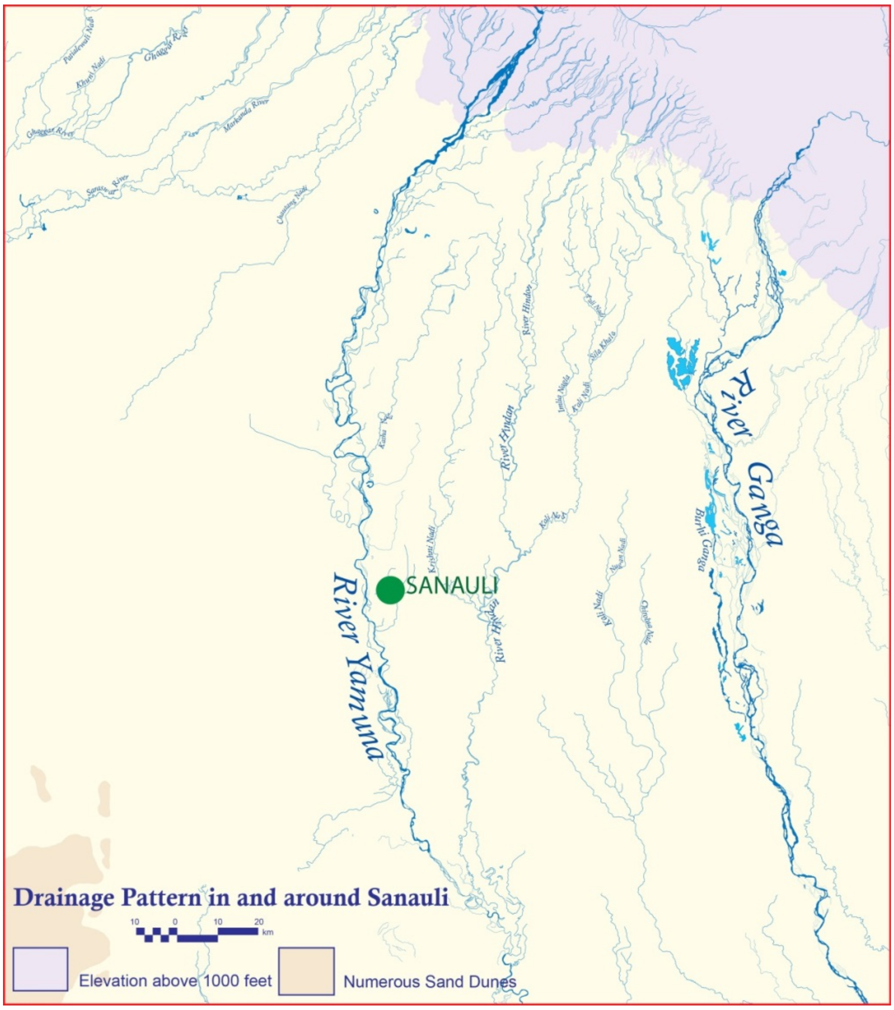


Fig. 5.15: Map showing the drainage pattern in and around Sanauli

In the *doab* region, the Yamuna has no remarkable tributaries except smaller streams, while the River Hindon has two notable tributaries namely Krishni and Kali Nadi.[83] The rivers are also characterised by the presence of a number of *bhur* mounds along its banks, some of which have the habitation of Chhaprauli, Kotana and Baghpat on the River Yamuna while those of Barnawa and Baleni on the River Hindon.[84]

River Hindon

The River Hindon is a tributary of River Yamuna, and it originates in the Upper Siwaliks in the Lower Himalayan Range in the district Saharanpur. The river has a total catchment area of 7,083 km^2 and is mainly a rain fed one. The rivers enters the district after traversing through district Muzaffarnagar and follows a south-southwest course and the *doab* narrows down further south and joins the River Yamuna in district Ghaziabad. The width of the river varies according to the season and it measures nearly 201 m during summer season and grows to slightly over 800

m during the rainy season.[85] The river is also known for soil erosion and the *khadar* land varies while the river passes away from the district. The upper course of the river has a *khadar* of about 1.6 km on either side of the river, while at the lower course in the district the *khadar* land widens on both the banks.[86] The two tributaries of River Hindon are Rivers Krishni and Kali Nadi.

River Krishni

The River Krishni or Karsuni is a small tributary of River Hindon and is located between the Rivers Yamuna and Hindon. The river Krishni enters the district near the village Tikri and flowing after a distance of 19.31 km it joins River Hindon near the village Barnawa.[87]

River Kali Nadi

There are two rivers in the name of Kali Nadi and to distinguish them, the eastern river, which is a tributary of River Ganga, is known as River Kali Nadi (East) while the western river, a tributary of River Hindon is called as River Kali Nadi (West). The river is fed by two smaller streams known as Imlia Nagla and Sila Khala.

River Banganga

There is a reference to another tributary of River Hindon named Banganga, which is placed before Hindon and Yamuna rivers. The River Banganga enters the district from Muzaffarnagar district at a place known as Dhanaura.[88] The river, after a distance of around 12.8 km it merges with River Hindon near the village Shahpur.[89] The river is active only during the monsoon season when it rains heavily reaching to a maximum width of 15.2 m with an average depth of 1.2 – 1.5 m.[90]

Drainage channels other than rivers and streams

The Meerut district gazetteer under which the district Baghpat once remained as a tehsil gives reference to drainage channels other than the rivers and streams that are of some significance. A brief of the drainage associated with Rivers Yamuna and Hindon is given below.

Kirthal Drain

This drain along with its tributaries namely the Ramla, Mukandpur and Malakpur drains helps in draining the rain water falling in an area of roughly 80.46 km^2 lying between the River Yamuna and Nala distributary.[91] The drain meets the River Yamuna near Luhari and the flow direction is from north – south.

Kandhala Drain

This drain originates from ponds near Kandhala in district Muzaffarnagar and drains the area lying between the Yamuna canal on the east and Kandhala distributary on the west.[92] The drain helps in the draining of are of the villages like Lumb, Kakripur, Kirthal, Ramala, and Budhpur in tehsil Chhaprauli.[93] The direction of flow of this drain is also in north – south direction also crossing the Nala distributary.

Allum Drain

This drain originates from the ponds near Alium village in district Muzaffarnagar, flows in a north – south direction, and meets the River Hindon near village Asara in tehsil Baghpat.[94]

Alawalpur Drain

This drain gets its name from the village Alawalpur located on the 160.9 km on Eastern Yamuna Canal and acts as a tributary of the River Yamuna.[95] This drain helps in the drainage of the villages like Angadpur, Alawalpur, Ahmadpur, Bazidpur, Bijrol, Bam, Bichpari, Barka, Barawadh, Chhacharpur, Gorana, Gadhi, Naurozpur and Sisna all located in district Baghpath.[96] The flow of the drain is also in a north – south direction and meets the River Yamuna near Baghpat.[97]

Lakes and Jhils

The district gazetteer of Meerut also makes references to Lakes, Jhils in the district Baghpat located in the khadars of Rivers Yamuna and Hindon, which are actually vast stretches of sheet of water in the depressions formed naturally, and there is no occurrence of marshy areas.[98]

5.2.2.3 Fauna

The main types of **animals** found in the district are monkey, wolf, hyena, fox and pig. The common varieties of **birds** found are duck, geese and teal in the *khadar* of Rivers Yamuna and Hindon. The other varieties of the birds that are found in the district include of sub-bird, *nilkanth (Coracus bengalensis),* barbet, kingfisher, hornbill, hoopoe (*Upapa epos*), swift, nightjar, hawk-cuckoo, *koel (Eudynamics scolopaceus)*, crow pheasant, parrot, barn owl, vulture, kite, peafowl, myna, crow, dove, *shikra (Astur oadius)*, tailor-bird, black drongo, robin, swallow, weaver bird, babbler, bulbul, pigeon, grouse and quail.[99] The water birds that are common are *sarus (Antigone Antigone)*, coot, snake bird, adjutant stork, snipe, heron, cormorant, stilt, stork, egret, moorhen, tern and grebe.[100] The common types of **reptiles** found in the district include *bamhni (Mabuia sp.),* chameleon, house

lizard, and lizard types like *sanda (Uramaxsti harwicki)* and *goh (Varanus monitor).*[101] The types of snakes found are cobra, krait, *teliya kumudi* and *kausra haraurdi* (all poisonous) and wolf-snake, pond-snake, rat-snake, earth-snake and blind snake (all non-poisonous).[102] Frogs (*Rena Tigrina* and *Bufo malenostictus*) are common among the amphibians.

The Rivers Hindon and Yamuna contributed for a good toll of fish and the present industrial developments and pollutants have considerably reduced the catch to a large extent. However, the common varieties of fish once abundant in the rivers are a testimony of the exploitation of the rivers as a major source of livelihood and diet during the early periods. The varieties of fish found in these rivers are *singhara (Mystus seenghala), silund (Silundia silundia), gonch (Bagarius bargarius), rita (Rita rita), katla (Catla catla), maigal (Cirrhina reba), rohu (Laboe calabasu), singhai (Hateropneustes fossilis), moli (Wallago attu), vacha (Eutropilchthys vashas), tengra (Mystus tengara), bam (Mastacembelus armatus) and eal (Amohiphous cuchia).*[103]

5.3 Spatial Relationship of Sanauli with Other Contemporary Sites

The geographical setting, location of an ancient site in relation to other contemporary sites influences various factors related to exploitation of resources. The spatial distribution of sites across a cultural landscape in a given time period also represents the cultural context of the sites and their inter-relationship can be understood.

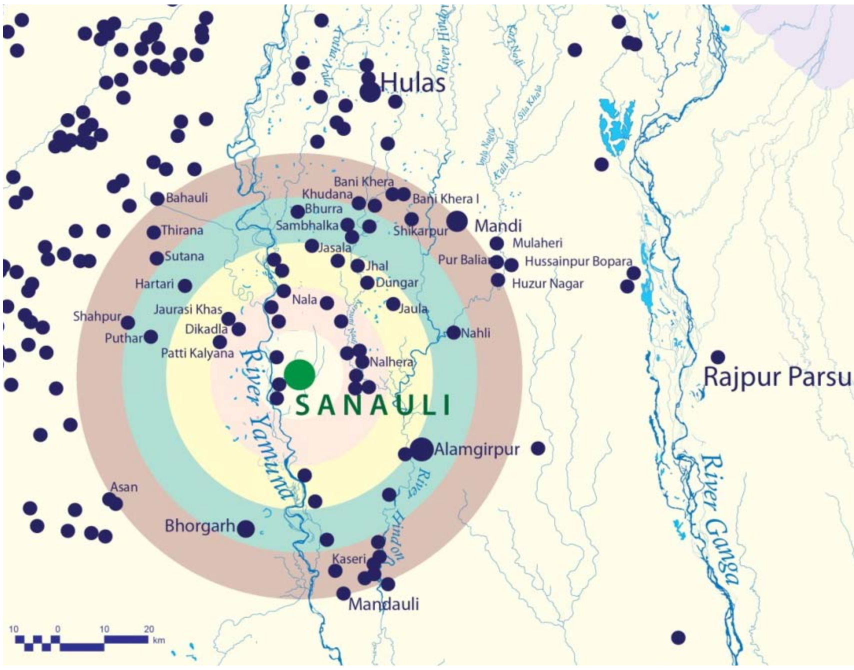


Fig. 5.16: Map showing the distribution pattern of Late / Post-urban Harappan sites within a 50 km radius from Sanauli

The inter-relationship of various sites in relation to each other in a cultural milieu and their study often comes under the category of "site catchment analysis". The approach of site catchment analysis in the archaeological perspective is aptly described by Vita-Finzi and Higgs who defines[104] as follows:

> *"the study of the relationships between technology and those natural resources lying within economic range of individual sites."*

The nature and importance in terms of exchange of resources and interaction is explained[105] by Roper as:

> *"…..the farther one moves from an inhabited locus, the greater the amount of energy that must be expended for procurement of resources…..as one moves away from the locus, it is assumed that the intensity of exploitation of the surrounding territory decreases, eventually reaching a point beyond which exploitation is unprofitable."*

The method of undertaking a site catchment analysis is also described[106] by Roper as:

> *"….site catchment analysis delimits a territory or set of concentric territories surrounding a site and assesses the resource potential contained within that area. The territory assessed is that postulated to be the area from which the greatest quantity of resources was derived."*

Two types of techniques for delimiting the territory to be examined in a site catchment analysis are also discussed by Roper as, *"….use of circular territories of fixed radii and the use of time contours."*[107] Roper also discusses the several constraints and difficulties in assuming this approach and proposes instead "linear spacing" and "Thiessen polygons" *"….as realistic approaches to estimation of catchment size and shape."*[108] Roper also discusses a whole range of approaches and theories on carrying out a site catchment analysis and analysis of site catchment data. The present study even though concentrates the burial practices of the Harappans at Sanauli, an understanding is being made to assess the contemporary sites, their spatial distribution in an increasing radius of 10 km up to a 50 km limit from Sanauli. The important excavated sites located within this 50 km will be studied in terms of cultural representation in relation to Sanauli Sfor putting the findings in a right perspective. The Fig. 5.16 presents a picture of the spatial distribution of late / post-urban Harappan sites in relation to Sanauli in 10 km radii intervals up to a maximum

radius of 50 km. The important sites excavated within the 100 km radius are Alamgirpur, Mandi and Bhorgarh. The site of Bhorgarh is already discussed in detail under 4.4.1 of Chapter 4 and hence not repeated here. Least to surmise here that Bhorgarh is also belonging to the second millennium BCE and the excavation brought to light remains of two burials. The orientation and arrangement of burial goods resemble that of the evidence from Sanauli.

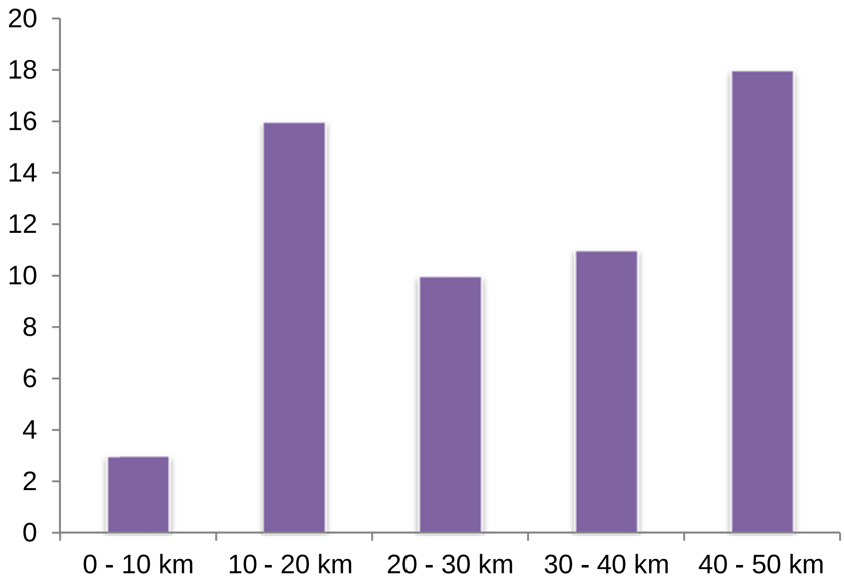


Fig. 5.17: Distance-wise distribution of sites from Sanauli

The above chart shows the number of sites located within a 50 km radius with Sanauli as its centre. The number of sites is taken in a 10 km interval and a total of 58 sites are found to be located within the 100 km radius while the number of sites within 0 – 10, 10 – 20, 20 – 30, 30 – 40 and 40 – 50 are respectively 3, 16, 10, 11 and 18. Out of these 58 sites, three are excavated as mentioned above. The site of Mandi is located in the 40 – 50 km range while Bhorgarh and Alamgirpur are located in the 30 – 40 km range. The three sites located within the 0 – 10 km radius are Jagaus (6.23 km), Kutana (6.63) and Kakor (7.67 km) all located on the left bank of River Yamuna and on exploration brought to light the remains of Painted Grey Ware. The ancient site of Kakor is an extensive one and seems to have a considerable deposit belonging to Painted Grey Ware culture. This also indicates a high probability that the antiquity of the site may extend further beyond PGW and a possibility of late Harappan deposit cannot be ruled out here.

A brief of the important excavated sites located is given below in order to understand the overall cultural setting.

5.3.1 Alamgirpur

Alamgirpur (29^0 00’ 10” N; 77^0 29’ 4” E) is located on the left bank of River Hindon, a tributary of River Yamuna and roughly 3.5 km away from the present river bed of Hindon. Alamgirpur is situated at a distance of 45 km northeast of Delhi and 27 km west of the district headquarters Meerut. The site is locally known as “Parasram-ka-khera” and was first subjected to archaeological investigations in the form of a long trench by Regional Camp Committee of Bharat Sewak Samaj in May 1958, which brought to light fragments of terracotta cakes, faience bangles and Painted Grey Ware.[109] The then North-Western Circle of ASI under the direction of Y.D. Sharma undertook excavation at the site based on the findings by Bharat Sewak Samaj.

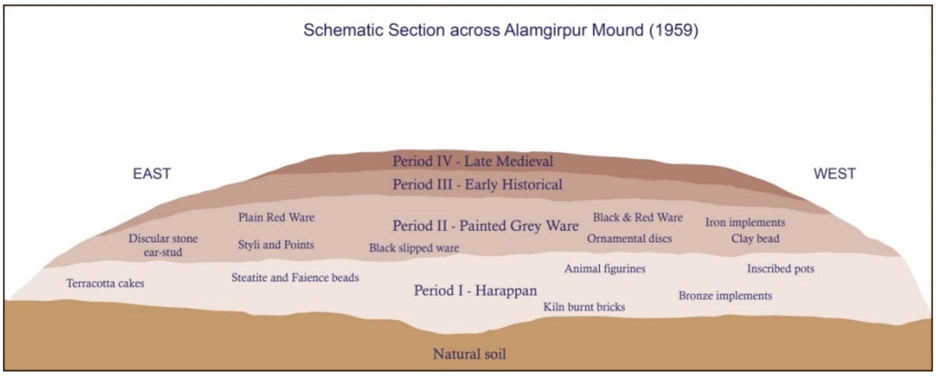


Fig. 5.18: Schematic section across Alamgirpur Mound

The excavation by ASI brought to light four cultural periods at the site, viz., Period I – Harappan Culture, Period II – Painted Grey Ware Culture, Period III – Historical and Period IV – Medieval, with a notable break in between each of them.[110] The occupational deposit of Period I is 1.82 m and represented by the ceramic assemblage of *“…..dish-on-stand, goblet with pointed base, straight-sided dish, cylindrical vase and beaker, goblet with a concave neck and elongated at base, shallow dish with incurved rim, shallow basin with tapering sides and a variety of rim-forms and perforated jars.”*[111] The ceramic assemblage consisting of red ware with a red slip and painting pattern executed in black colour and consisting of *“….simple bands, triangles, squares, intersecting circles, plants and peacock”*, while other decorative motifs include *“…hatching…..in parallel lines or criss-crossed,……occasional blocked designs.”*[112]



Fig. 5.19: General view of the mound, Alamgirpur

The other prominent finds from this period include evidence of cloth impression on a trough, the technique identified being 'plain weave'; animal figurines consisting of head of a bear and fragmentary body of humped bull, the former being part of a vessel; terracotta objects like *"….cakes, carts, cubical dice, beads and bangles"*; a terracotta bead coated with gold; *"….miniature bowls and bangles of faience, beads of steatite and semi-precious stones and pins and a broken blade of bronze or copper."*[113]

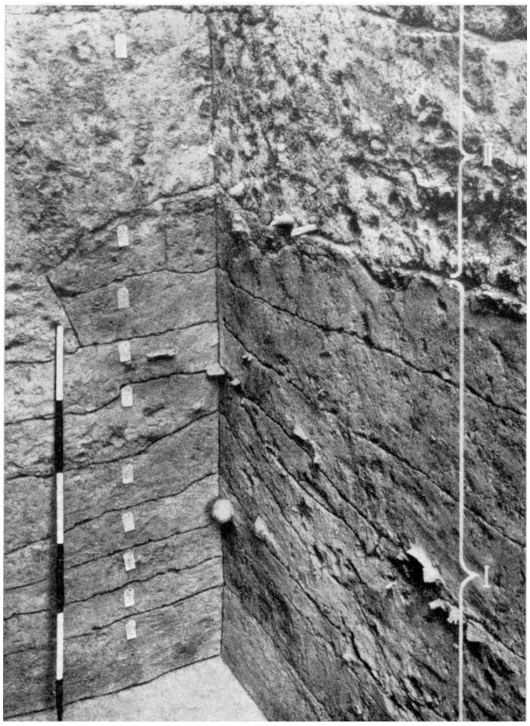


Fig. 5.20: Deposits of Period I & II



Fig. 5.21: Broken vessels *in situ*



Fig. 5.22: Findings from Period I

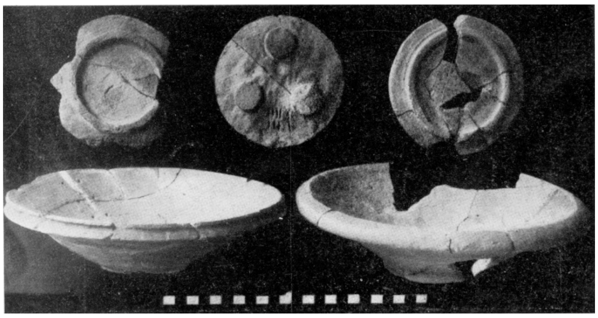


Fig. 5.23: Reconstruction of vessels of 5.21

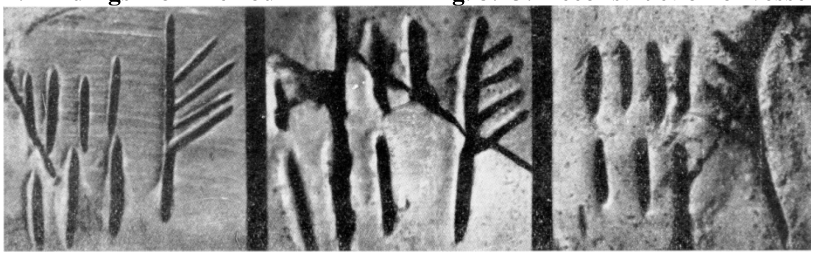


Fig. 5.24: Inscribed potsherds of Period I, Alamgirpur

Even though evidence of structural remains could not be noticed, baked bricks recovered from this period have varying dimensions consisting of 28.5 – 29.8 cm in length, 13.3 – 15.8 cm in width and 5.7 – 7 cm in thickness. The average dimension of the large sized brick is 35.6 X 20.3 X 10 cm. Evidence of grooves made by fingers is noticed either along the length or diagonally at the corner. The presence of oblong tiles is also noticed from this level. It has been also reported that during clearance of the already exposed trenches, two phases of construction in the form of consolidated mud-surface in association with firing activity, a pit containing terracotta cakes and potsherds and a mud-wall in associated with a brick-lined furnace were noticed.[114] A notable find of this period also include that of Harappan signs on pottery.



Fig. 5.25: Harappan painted pottery

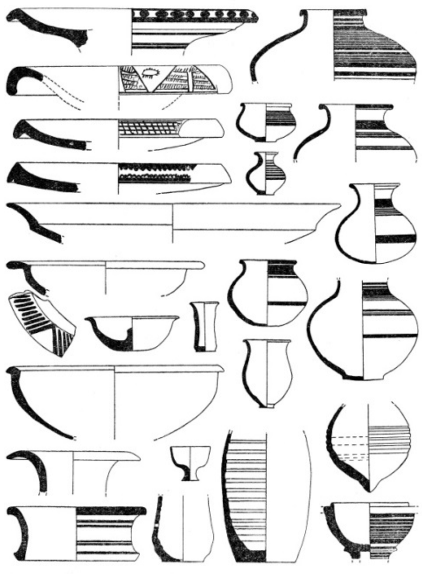


Fig. 5.26: Harappan pottery typology

5.3.2 Mandi

Mandi (29^0 26' 10" N; 77^0 34' 35" E) is situated at a distance of 10 km east of River Hindon and roughly 20 km west of Muzaffarnagar, the district headquarters. The chance discovery of a jewellery hoard mostly consisting of gold artefacts was brought to light in June, 2000 from the field of one Anil, son of Satpal Jat of Mandi during a clearance operation. The present village is located on an ancient mound rising to a height of nearly 2 m from the surrounding fields and said to have yielded bricks of the sizes of 31 – 33 X 21 – 23 X 9 – 11 cm usually from various digging operations.[115]




Fig. 5.27 & 5.28: Condition of site after discovery of jewellery hoard, Mandi




Fig. 5.29 & Fig. 5.30: Condition of site after discovery of jewellery hoard, Mandi



Fig. 5.31: Copper containers & hoard



Fig. 5.32: Hoard of gold & stone jewels

The hoard was discovered at the northern portion of the mound during an agricultural levelling operation. The hoard consisted of circular disc beads of gold in

large numbers, spacer-beads, hollow terminal beads, all of gold and beads of agate, orbicular jasper, onyx, etc. The hoard is reported to be associated with the lower levels of the agricultural field and in association with pottery assemblage comparable with that of Hulas, Alamgirpur, etc. The pottery assemblage consists of plain red ware, painted red ware and grey ware with a thick core.[116]



Fig. 5.33: Siver bangles, Mandi



Fig. 5.34: Siver bangles, Mandi



Fig. 5.35: Gold bangles, Mandi



Fig. 5.36: Gold bangles, Mandi



Fig. 5.37: Gold bangle, Mandi



Fig. 5.38: Gold bangle, Mandi

The main shapes identified are *"….dish-on-stand (?), neck portion of vases with horizontally spayed out rim, dish with drooping rim, ring based jar, vases with disc base, storage jar, button knobbed lid with central knob, vessels with externally flattened drooping rim and marked by a carination below the rim, nail headed basins and dishes, vessels with externally thickened beaked rim, etc."*[117] A few potsherds

have also painted motifs like pipal leaf, horizontal register of bands, etc., in black colour over a red slip.[118]



Fig. 5.39: Gold bangle, Mandi



Fig. 5.40: Painted potsherd, Mandi



Fig. 5.41: Agate & jasper beads, Mandi



Fig. 5.42: Disc beads, Mandi

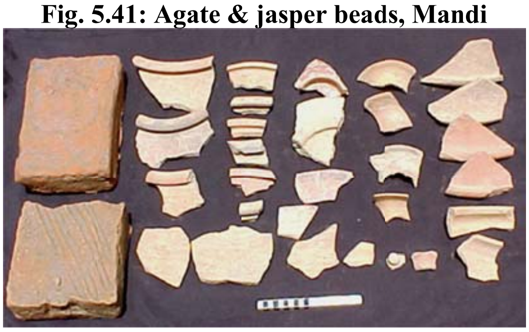


Fig. 5.43: Pottery and bricks, Mandi



Fig. 5.44: Pottery types, Mandi

The gold beads like circular disc beads, spacer beads, and hollow terminal beads have been compared with similar findings from Mohenjo-daro, Harappa, Lothal, etc. while the beads of agate are compared with those from Mohenjo-daro, Lothal, Allahdino. Two copper containers, one is a large deep bowl with convex sides and flat base and other rectangular in shape were also found in association with the hoard. Also present are parts of silver jewellery like anklets / bangles and fragments of silver pots. It was also reported that large hollow bangles of silver and gold were also found along with the hoard, some of which were later acquired by ASI and now on display in the National Museum, Delhi. The shape of these bangles,

in the form of heart, is very similar to those found from other sites of Harappan Culture. Similarly, the copper container, which is rectangular, could have housed gold fillets, a good number of which have been found from sites like Mohenjo-daro and Allahdino. The copper container was empty when acquired by the local authorities and could have housed several fillets but were missing.

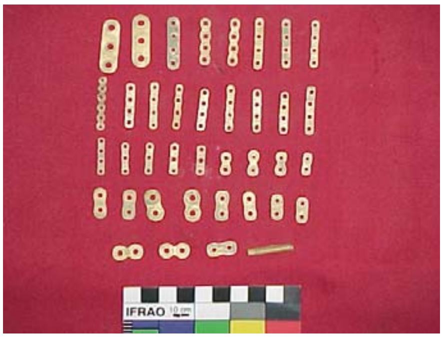


Fig. 5.45: Gold spacer beads, Mandi



Fig. 5.46: Disc beads, Mandi



Fig. 5.47: Terminal beads, Mandi



Fig. 5.48: Conical beads, Mandi

The ASI carried out trial excavation at the site of discovery of jewellery hoard in 2000 and brought to light additional gold jewellery consisting of disc beads of various sizes, spacers and conical beads besides beads of banded agate, steatite and faience; broken silver pieces.[119] The excavation also brought to light a horseshoe shaped kiln measuring 1.27 X 0.84 X 0.8 m and a baked brick structure with bricks measuring 36 X 22 X 10 cm.[120]



Fig. 5.49: A portion of gold disc beads, Mandi

5.4 Discovery of archaeological remains at Sanauli

The chance discovery of pottery remains, artefacts and human skeletal remains in July, 2004 from an agricultural field belonging to Yogeshwar Dutt Sharma draw attention a host of archaeologists from the ASI. A team of archaeologists from ASI investigated the find spot of the findings and it was observed that that unscrupulous digging operation was carried out in an area of 35 X 20 m (NS – EW) in the midst of agricultural fields. The find spot is located at a distance of 200 m to the northeast of present village named as Sadiqpur Sinauli. The unscrupulous digging by the owner of the field was carried out to remove the alluvial earth to a depth of nearly 1.5 m from the surrounding fields, thereby exposing artefacts, pottery and human skeletal remains.[121]

5.4.1 The Findings

The archaeologists investigated the find spot of the discovery and the surrounding area and it was observed that the pottery findings belonged to the Late Harappan period on stylistic basis. Further, the remains of pottery and partial skeletal remains were found in the exposed sections and in one instance, a skull towards the north and the remaining body portion extending towards the south was observed, thereby indicating a burial in roughly north – south orientation.[122] It was also informed by the villagers that a skull portion got completely damaged when a local found the remains and tried to clean it with water. Further, the pottery remains collected by the villagers, both fragmentary and some complete ones were brought to the notice of the team and it was documented.[123]

The surrounding spot was further explored by the team and *"…..several fragmentary potsherds, and complete examples, conforming the late Harappan pottery traditions of the region, were collected / recovered….one complete example of a vase was also recovered…."*[124] The chief finds from among the artefacts and human skeletal remains is a large number of pottery, both fragmentary and some complete ones, mainly consisting of red ware except one example of grey ware.[125] The main shapes observed from among the ceramic assemblage are *"…..(i) dish-on-stand, (ii) elliptical vases with or without footed base, (iii) pot-stand, (iv) jars, (v) small vases commonly called lota vases, (vi) deep and shallow bowls, (vii) bowl-cum-lid, (viii) miniature vessels….."*[126]



Fig. 5.50 & 5.51: Condition of the find spot after digging operations, Sanauli

5.4.1.1 Dish-on-stand

Dish-on-stand examples are found from both the grey and red wares. They are characterised by the drooping rim of the Late Harappan tradition. An interesting and distinct example among the dish-on-stands is that of a grey ware consisting of five fragmentary pieces, out of which four could be joined and formed part of a dish portion.[127]



Fig. 5.52 & 5.53: Grey dish-on-stand with geometrical decorative patterns, Sanauli

The fifth piece formed part of the stem portion of the dish-on-stand. This example is also characterised by the typical drooping rim of the late Harappan tradition. This example is also characterised by beautiful incised geometrical decorations consisting of "*……(i) a group of concentric circles of notches enclosing a circlet, (ii) triple row of notches, (iii) row of notches along the edge of rim, (iv) pattern of circlets in clusters and in form of '+', in one instance confined within a lozenge formed by double lines of dots,…..*"[128] The decorative patterns were executed "*….by creating shallow geometrically designed incisions, a pattern of concentric dots or grooves, by a sharp tool, probably made of metal, which were executed when the pottery was leather hard. These shallow grooves were later filled with white paste of chalky material (steatite powder?) forming an ornamental design*

against grey background, and fired. Firing enabled fusion of white paste with the body of pot with the result the former getting well stuck in place."[129]

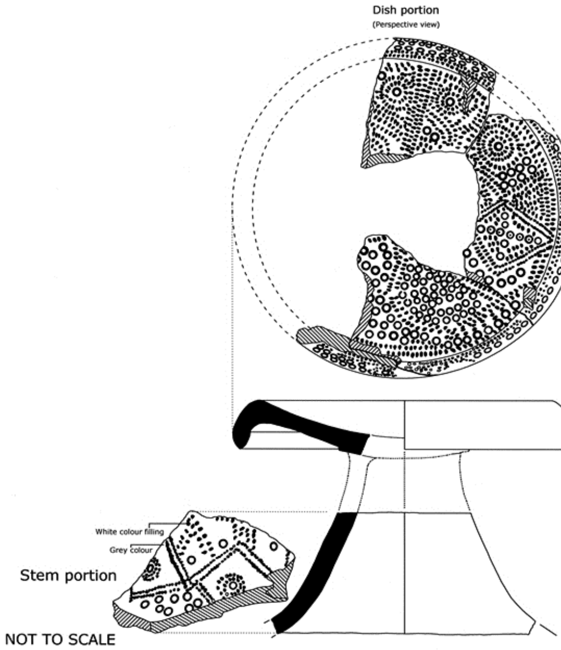


Fig. 5.54: Details of decorations on grey dish-on-stand, Sanauli

The decorative designs consisting of the white paste has fallen at several places along the breakage line thereby exposing the grooves originally formed to fill the paste.

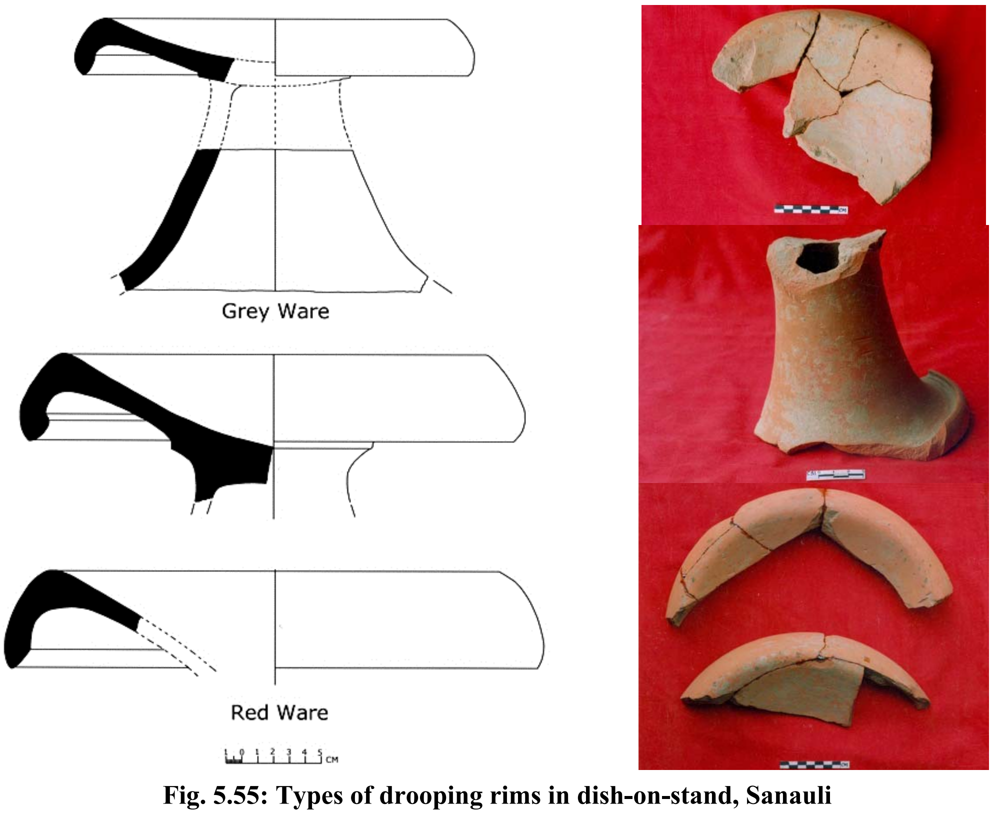


Fig. 5.55: Types of drooping rims in dish-on-stand, Sanauli

The dish-on-stand examples from the red ware are similar to the findings from other Late Harappan sites like Bhagwanpura, Hulas, Mitathal, Mandi. All the dish-on-stand examples are typical with the drooping rim dishes with a pronounced ledge at the junction of stem and dish portion. The drooping portion of the rim is also distinct among the three examples reproduced here, from a simple droop to a deeply pronounced droop with an undercut and beaded rim.

5.4.1.2 Elliptical Vases

The major collection from among the pottery assemblage is tall and elongated vases, described here as "elliptical vases". This pottery type is found both in complete forms as well as broken ones, some of the broken ones being grinded and flattened by the villagers.

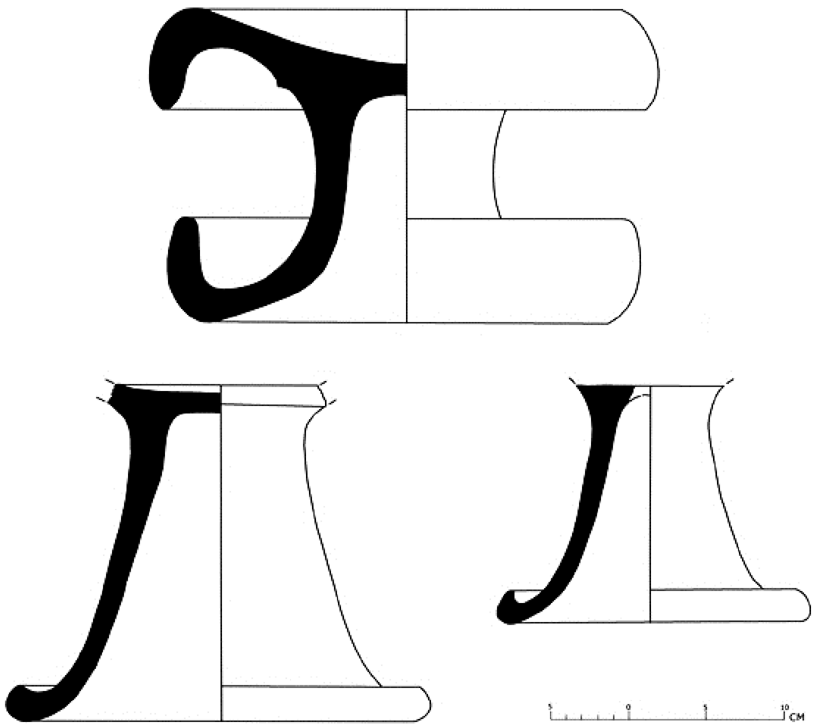


Fig. 5.56: Types of dish-on-stands, Sanauli

The vases were divided into three categories, viz., *"…..(a) tall, elongated and slandered, (b) small and elongated and (c) elongated and constricted base…..with or without disc base….."*[130] The height of the vases vary from 18 – 28 cm and in some cases internal corrugation is noticed indicating manufacture using coil technique and finished on a wheel. The vessels were given a bright red slip originally in many instances, which has paled down due to burial conditions and weathering effect.



Fig. 5.57: Vases and *lotas*, Sanauli



Fig. 5.58: Vases, Sanauli



Fig. 5.59: Vases grinded and reshaped by the villagers, Sanauli



Fig. 5.60: Wide mouthed bowl and bowl-cum-lid, Sanauli

5.4.1.3 Pot-on-stand

A complete specimen of a dish-on-stand is categorised as a pot-on-stand from among the collection. This specimen was found in three fragments and upon joining them represented a complete one, the dish portion having the typical drooping rim while the base is a near mirror image of the dish.[131] Even though this specimen is catogorised as a pot-on-stand, it actually belongs to the dish-on-stand type.

5.4.1.4 Jars

Another type of pottery among the collection represented by only three specimens is jar, which is wide mouthed, jars with flaring out mouth and normally with wide mouth.



Fig. 5.62, 5.63 & 5.64: Beads of agate, steatite, jasper and faience, Sanauli

5.4.1.5 *Lota* shaped vessels

These types of vessels have been normally found in the Harappan period of this region and among the pottery collection; two specimens belonging to this were found, with bulbous body.

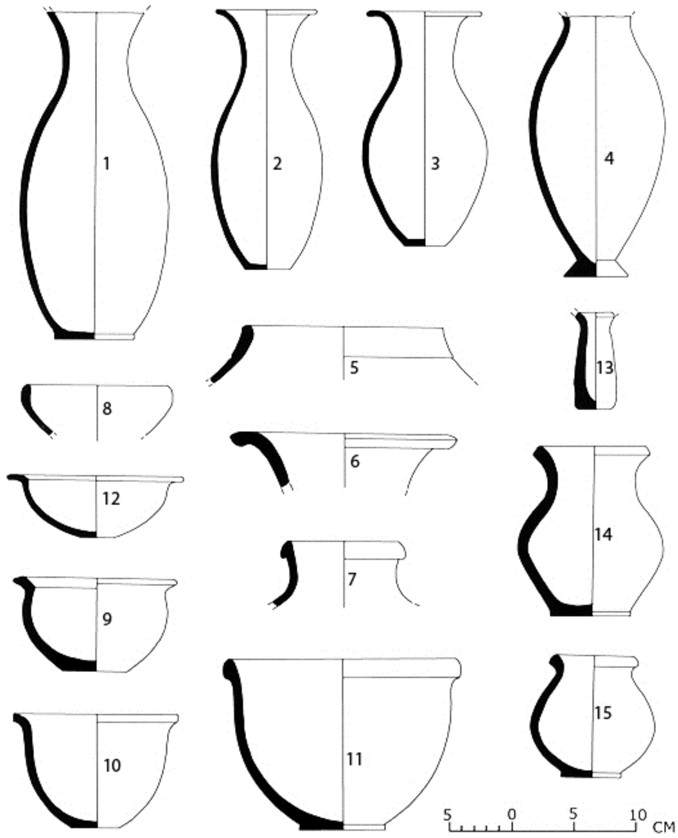


Fig. 5.65: 1 – 4 Vases; 5 – 7 Jars; 8 – 11 Bowls; 12 Bowl-cum-lid; 13 Miniature pot; 14 & 15 Lotas, Pottery typology from explorations, Sanauli

5.4.1.6 Bowls

Four complete bowls were found in the pottery collection of red ware, of medium fabric, well fired and unslipped. One among them has an incurved rim while the other three have an out-turned rims, convex profile and with varying depths and flat bases.

5.4.1.7 Bowl-cum-lid

Only one specimen of this variety is found from the collection, of red ware, medium fabric and unslipped without any decoration.

5.4.1.8 Miniature pots

One specimen of a miniature pot is also found from the collection, which is also commonly found in the pottery repertoire of Harappan Culture.

It has been surmised that the pottery collection found from the exploratory finds and digging operation belongs to the typology generally found in the late Harappan period and absence of classical Harappan types.[132] The pottery finds are also comparable with the similar finds and typology from sites like Alamgirpur,

Hulas, Mitathal, Bhorgarh, etc., and the Sanauli finds are dated to the beginning of second millennium BCE.[133] The exploratory investigations also brought to light remains of beads of agate, jasper, faience and steatite, the typology of which can be generally placed in the late Harappan traditions. Another interesting and most important find from the explorations is that of copper antennae sword which is well known from the copper hoard repertoire. This discovery is of much significance keeping in view of the predominance of Late Harappan findings and its probable association with copper hoard culture.

5.5 Excavation at Sanauli and the findings

The findings from the village of Sanauli, both from unscrupulous digging and exploratory investigations revealed the potential of the site in terms of its importance of a Harappan period site. This prompted the Archaeological Survey of India to carry out excavations at the site in order to reveal further evidences and to provide better understanding of the findings from explorations. The excavation at the site was carried out from 2005 – 2006 by Excavation Branch II, ASI under the direction of D.V. Sharma.

5.5.1 The environs at Sanauli

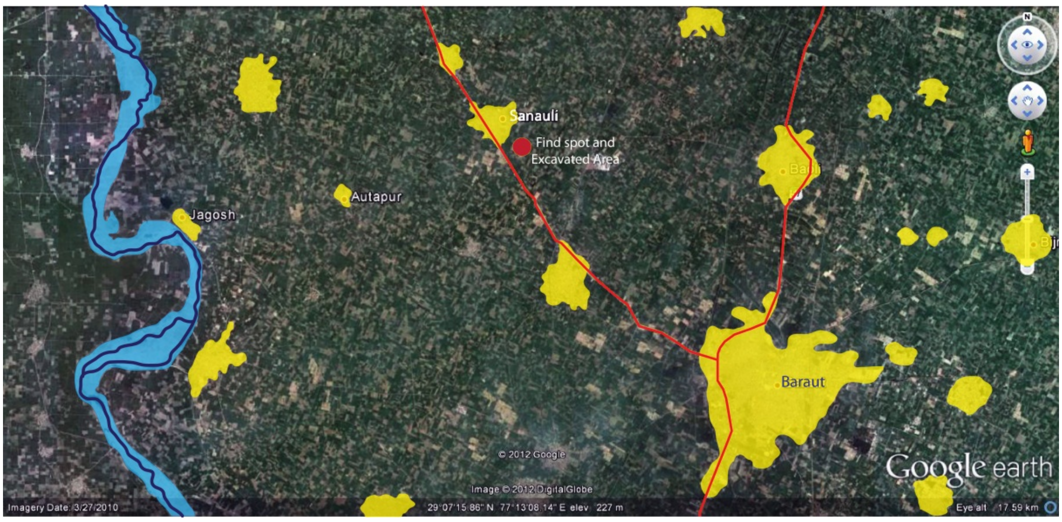


Fig. 5.66: Location of Sanauli and environs

Sadiqpur Sinauli or Sanauli is a village of moderate size measuring roughly 950 X 850 m (NS – EW) located on the Baraut – Chhaprauli road. Sanauli can be reached from Delhi either through the Loni – Baghpat – Baraut road or one can travel on the Delhi – Chandigarh road, take a right near Sonepat, and reach via Baghpat. Sanauli is located at a distance of around 57 km as a crow flies to the northeast of Delhi and around 7 km northwest of Baraut. As mentioned in 5.2.1 the find spot is located at a distance of 7.2 km east of River Yamuna. As described

above in 5.4.2.1 the entire district is characterised by flat alluvial plain, fertile, and productive. The environs at Sanauli is also no exception in this regard.

The find spot of artefacts and human skeletal remains is located at a distance of nearly 200 m to the east-southeast of the present village. The entire area is fertile and cultivable and the find spot is part of an agricultural field. The crops grown locally are sugarcane, wheat, to a large extent and some seasonal crops depending on the demand locally. The region is under extensive sugarcane cultivation and during most part of the year; it is very difficult to get access to investigate the nearby area unless and until there is a patch left in between. The sugarcane cultivation is because of a sugar mill, which is located at a distance of 1.6 km east of the village Sanauli.



Fig. 5.67: Sanauli and its immediate environs

There is a series of water bodies, four in number, to the west of the find spot and on the eastern fringes of Sanauli village. These water bodies make an arc and the depressions indicate that they might have been connected together in antiquity and represent the remnant of a water channel. The water bodies in the local parlance are also known as *johad* and it is likely that it was an ox-bow lake left behind by River Yamuna when it shifted towards west. As mentioned in 5.2.1.3, the local soil texture is sandy loam to very fine sandy loam, which is conducive for agricultural purposes. Geologically, the region is characterised by the older alluvial soil of River Yamuna. The alluvial deposits are observed from the find spot up to a depth of 1.2 m from the surface and beyond that is a deposit of calcium carbonate nodules up to a depth of 1 m in some areas. The accumulation of calcium carbonate nodules may be attributed to the fluctuations in the water table in the past and its evaporation.



Fig. 5.68: Google Earth image showing recent levelling and find spot of pottery

Another water body is noticed to the south-southwest of the village. The archaeological remains are seriously threatened due to extensive vegetation as mentioned above and agricultural practices and more recently the upper layer of the alluvium is utilised for manufacturing bricks. A series of brick kilns have also sprung up to the south-southeast of the village.

The adjoining areas are being leveled and utilised for making the bricks. It was also observed during a recent site visit to Sanauli in July, 2012, the area to the east of already excavated site is extensively leveled and topsoil removed to facilitate the making of bricks. The area leveled by the landowners measure approximately 8000 m^2. The leveled area is also reported to have yielded pottery and bone fragments, which indicate the approximate extent of the burial site further beyond the already exposed and excavated site. The villagers also report that due to another levelling operation to the northwest of the excavated area, large sized pots along with a container, most probably of wood was found at a depth of approximately 1.5 m from the surface.

However, the villagers immediately filled the pit. Thus, if the above evidences are taken into account, the cemetery area at Sanauli is much larger than originally assumed and it could account to one of the largest such sites of the Harappan period. The contour plan of the find spot and its surroundings was prepared and it clearly indicated the flat nature of the terrain. The trenches were laid out in the grid pattern, and each trench measured 10 X 10 m in dimensions. A total of 20 trenches of 10 X 10 m were laid out and out of these 60 quadrants excavated of 4.25 X 4.25 m dimensions. A total area of 1565 m^2 was thus excavated which brought to light features of 116 interments / burials / and other features associated

with some kind of burials. These quadrants were excavated up to varying depths, the maximum being 2.4 m below surface level.

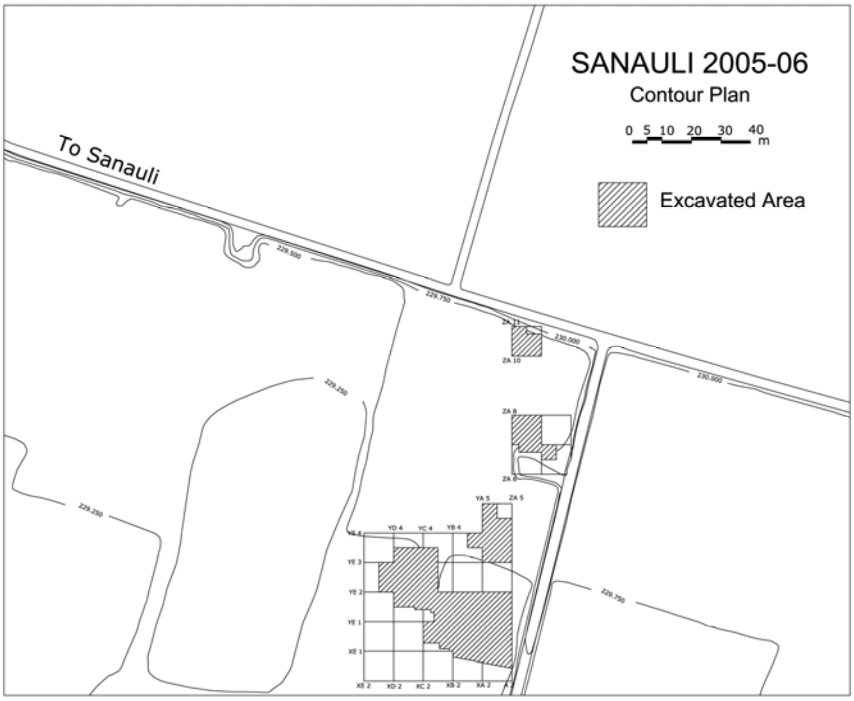


Fig. 5.69: Contour plan of Sanauli and layout of trenches

5.5.2 Excavations at Sanauli

The excavation in and around the find spot of artefacts and skeletal remains was carried out by the Excavation Branch II of the ASI with the objectives consisting of the following:

> *"….(1) to establish cultural context of the explored copper antenna sword which is a typical implement of the Copper Hoard assemblages,*
>
> *(2) to retrieve information pertaining to the Harappan cemetery and habitational site in the upper Ganga – Yamuna doab, and*
>
> *(3) to further understand nature and character of the Harappan settlement pattern in the region under reference."*[134]

5.5.2.1 General features of the burial finds

Orientation of the burials

The excavations brought to light 116 burials with an orientation of northwest – southeast with variations of 30 – 80 degrees to the left of true north. The head of the skeleton is placed to the northwest and the body extended towards the southeast direction. Out of the total 116 features / instances in which the excavation

team has recorded the burial features, a clear orientation could be observed only in 71 cases.

The evidence for orientation is observed in these 71 cases based on the availability of skeletal remains, consisting of at least leg bones kept *in* situ, and in case the longer bones are unavailable, clues are taken from the arrangement of burial pottery kept in a noticeable orientation.

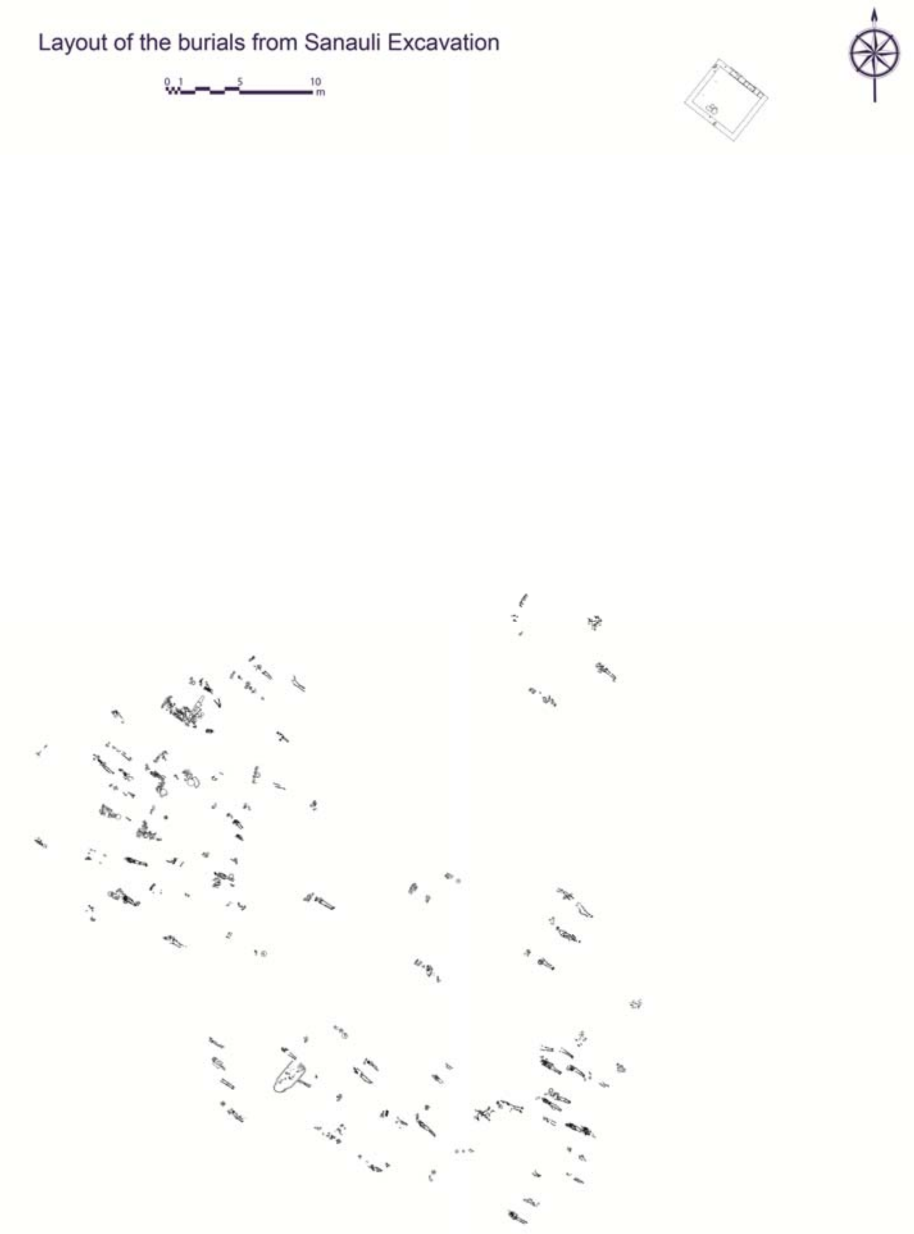


Fig. 5.70: Layout of Burials from Sanauli Excavation

The analysis into the orientation of various burials indicates that 19 burials are oriented between 55^0 and 60^0 to the left of true north; 16 burials oriented between 50^0 and 55^0 to the left of true north, 11 between 45^0 and 50^0 to the left of true north and 9 between 60^0 and 65^0 to the left of true north.



Fig. 5.71: Layout of the main cemetery area except Burial 28, Sanauli

Thus, it is evident that the most preferred direction is between 45 and 65 to the left of true north, while some stray ones are noticed which is nearly of E – W orientation. The mean orientation from the following histogram is 54.21 degrees to the left of true north. The following histogram and rose diagram gives an idea of the orientation of burials.

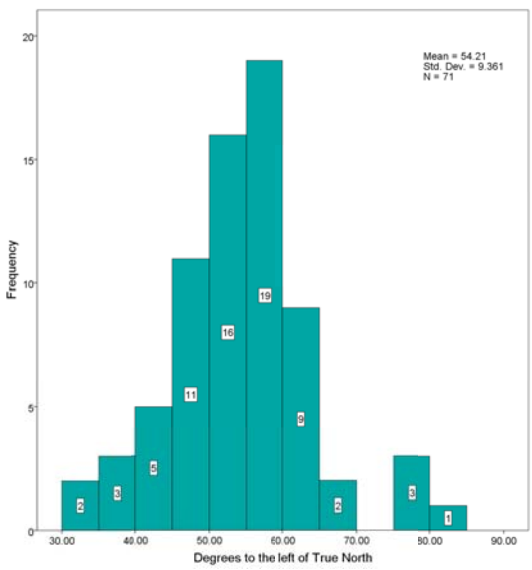


Fig. 5.72: Histogram showing the orientation of burials

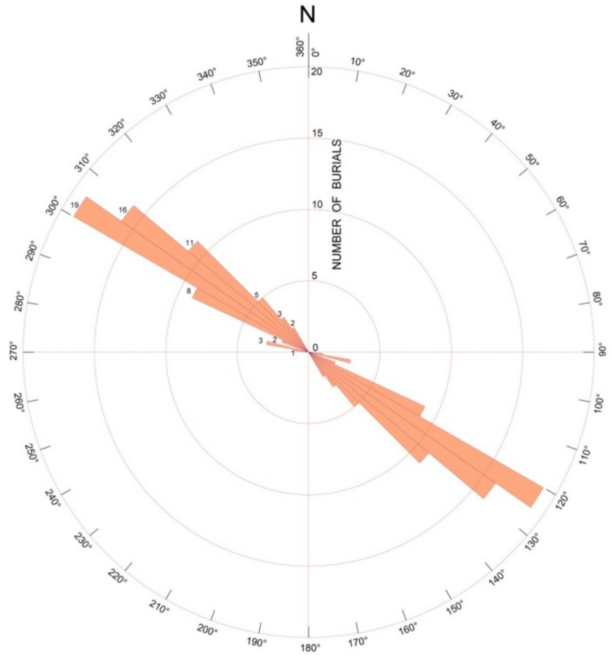


Fig. 5.73: Rose diagram showing the variation in orientation of burials

The Burial 106 is of E – W orientation, which is a symbolic burial in the form of a human torso decorated and outlined with steatite flat discs upon which is laid a copper sheath diagonally. The other burials which are nearly E – W orientation (4 burials in the histogram, between 75 and 85 degrees to the left of true north) are Burials 73 (77.35^0), 25 (75.15^0), 16 (80.66^0) and 18 (76^0). The arrangement of pottery is generally found near the head towards the north and also along the body and beneath it.

Classification of the burials

The burials have been classified[135] into the following types by the excavator:

(i) *Primary extended burials with the bodies placed in supine condition, the head sometimes facing the east;*

(ii) *Secondary burials, with remains of only fragmentary bones and*

(iii) *Symbolic burials, which contain no human bones and only grave goods or indication of a burial.*

However, a re-analysis of the burials indicate that the primary and symbolic burials alone dominate and evidences for a definite secondary burial is lacking. The classification of the burials at Sanauli based on the inhumation and interment is thus, (i) primary and (ii) symbolic burials. A further classification is also done based on the context and features in which the burials were excavated and documented. They are put under the following categories:

A. *Primary burials in which the skeleton is found along with burial furniture and ornaments in situ and more or less well preserved;*

B. *Primary / disturbed burials in which even though originally the body was placed, due to later disturbances, the original context is disturbed to a greater extent in several cases;*

C. *Symbolic burials in which no human skeletons or the normal arrangement of burial furniture is found and the burial is represented only symbolically;*

D. *Disturbed burials in which even the original context is not available and the burials are found in a disturbed condition with the bones available in topsy turvy condition and some of them are doubtful to be termed as burials; and*

E. *Features termed as burials but do not contain either a skeleton or evidences as a symbolic burials; they only contain scattered or isolated pottery.*

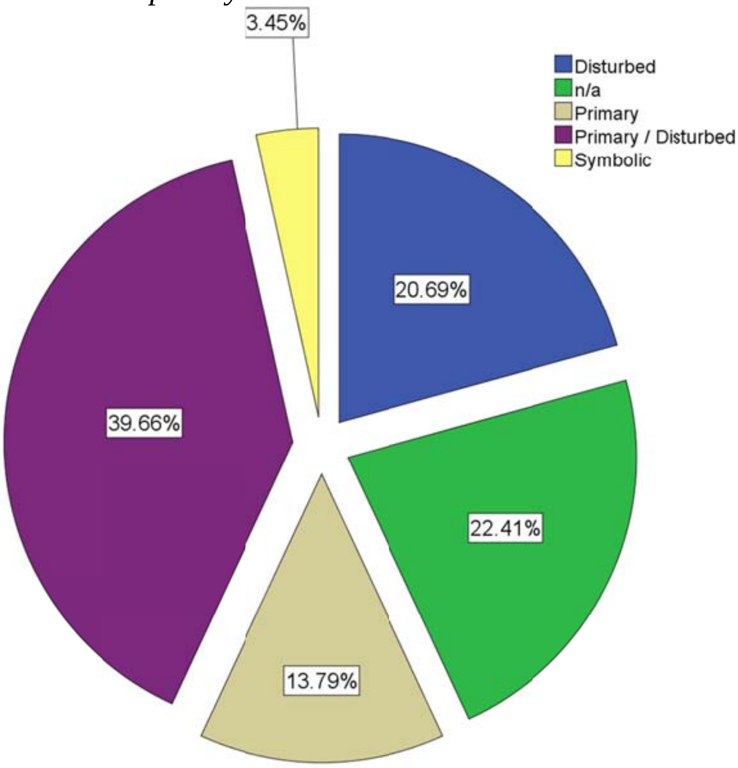


Fig. 5.74: Chart showing percentage of context of burials

The above chart indicates that 39.66% of the burials (46 in number) belong to the **Category B**; 22.42% (26 in number) of **Category E**; 20.69% (22 in number) of **Category D**; 13.79% (16 in number) of **Category A** and 3.45% (4 in numbers) of **Category C**. Thus, it is also indicated that 62 burials are originally in a primary context out of which 46 are in a disturbed condition.

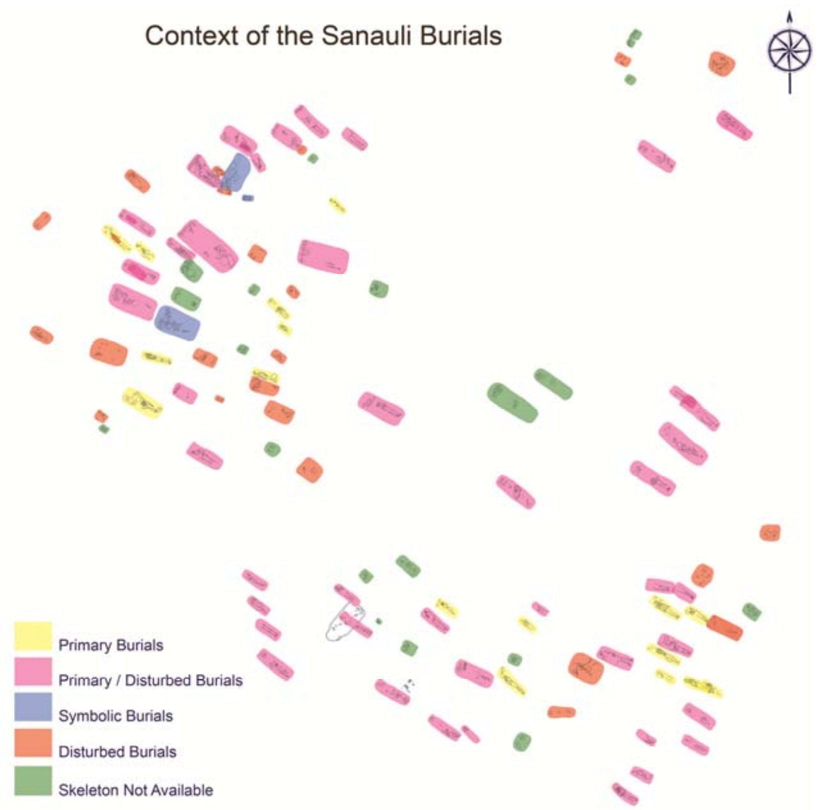


Fig. 5.75: Context of the Sanauli burials

Bio-archaeological findings of the burials

Prof. S.R. Walimbe of the Deccan College Post Graduate Research Institute, Pune carried out the preliminary bio-archaeological investigations of the Sanauli skeletal remains during the excavations along with his student, Dr. Veena Mushrif Tripathy. The team in the field studied 41 skeletal remains and later, one more skeleton belonging to Burial 95 was also studied separately. Hence, a total of 42 skeletal remains could be studied in terms of sex determination. The studies revealed that out of 42 individuals, ten are of males with identification of two doubtful; 8 are of females and 6 belonging to the sub-adult group. The sex of 18 individuals could not be determined due to various reasons. The Fig. 5.76 gives the idea of the sex ratio represented among the skeletal remains from Sanauli. Among the sub-adults, the following is the break-up based on the age estimation:

Sl. No.	Burial	App. age
1.	Burial 67	1 – 2 years
2.	Burial 48	2 years
3.	Burial 2	3 – 4 years
4.	Burial 36	4 – 5 years
5.	Burial 22, 71	10 years

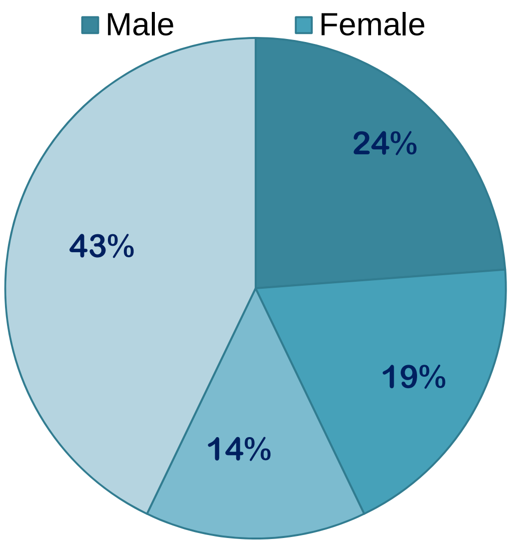


Fig. 5.76: Sex distribution of individuals from Sanauli Cemetery

The other anthropological findings include the average stature for male ranges from 159 cm to 178 cm and for the female, from 169 cm to 179 cm. On the preliminary analysis, it has been observed that the average stature of female is 174 cm while that of male it is only 168 cm. The females are also found to be very robust and tall. The tibia of one individual (Burial 21) is found to be longer than the femur, which is an exceptional case. The right clavicle on one individual (Burial 37) is very robust and short in comparison with the left one, indicating some kind of occupational stress on the right side.

The dental pathologies include tartar accumulation, enamel hypoplasia (broadly defined to indicate deviations from a normal enamel in its various degrees of absence), and dental discoloration. Some other different dental morphology is extra cusp-like parastyle, carabelli's cusp (a small additional cusp of upper molars, which is a hereditary feature).

The preliminary studies indicate that the Sanauli cemetery was used for burying all age group and there is no cemetery area for children.

5.5.3 Description of individual burials

5.5.3.1 Burial 1

This burial is a primary one (Category A) and in a northwest – southeast orientation and excavated in the mid-western part of the trench YA1 and its RL measures 229.23 m MSL. The orientation of the burial is 57.04^0 to the left of true north. This is an extended inhumation burial with the skeleton placed in supine position. The head is slightly raised and the remaining body position is straight with

both the hand resting over the body and the arms placed over the pelvis portion. The legs are placed straight and the toes are touching each other. The evidence indicates that the body was tightly wrapped in a cloth as the shoulder and rib bones are compressed. The humerus bones are dislocated due to this tight compressing and found out of the shoulder joints. The age and sex of the individual could not be determined, as a detailed anthropological investigation is not carried out. The extant height of the individual is 1.57 m, which indicates an average sized one. This individual was found with two copper bangles, one each on the wrist of the arms. The copper bangle is in the shape of heart, thin and circular section. The heart shape is a common one observed during the Harappan period and finishing of products in several materials has been observed. The shape is also comparable with that of gold and silver bangles found from Mandi and also from the gold bangles found in Burial 95 from Sanauli.

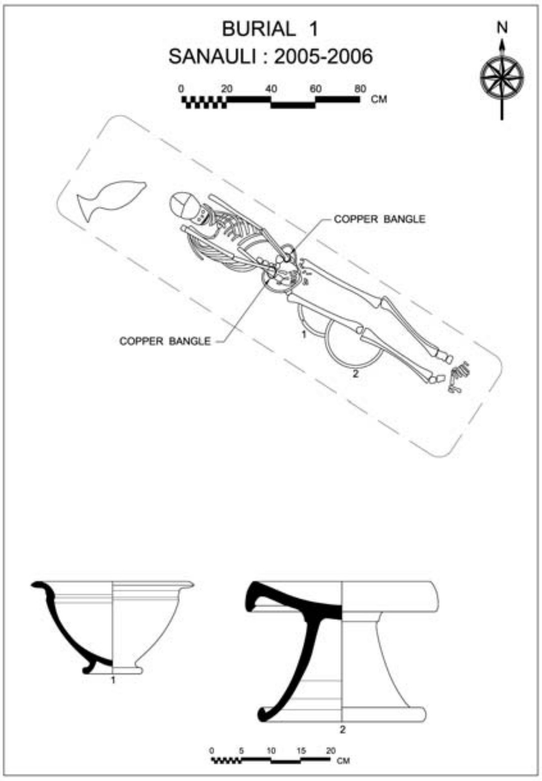


Fig. 5.77: Burial 1 and pottery forms, Sanauli

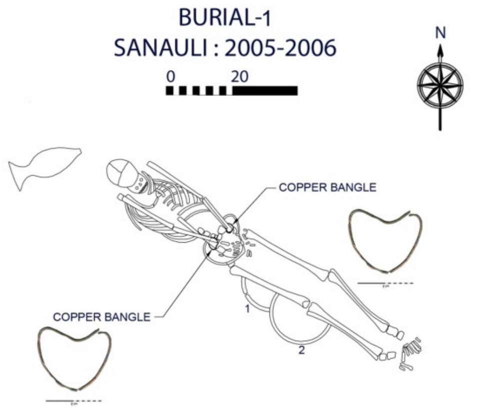


Fig. 5.78: Burial 1 and bangles *in situ*, Sanauli



Fig. 5.79: Details of copper bangles, Burial 1, Sanauli

The burial furniture consists of a vase kept near the head at the north and two vessels, one a dish-on-stand and another a deep bowl was found placed below the hip portion at a lower level than that of the body. The evidence indicates that the burial pit was first dug, the pottery vessels placed approximately at the hip position, and rituals might have been conducted. Then the pit was filled up to the height of

top portion of dish-on-stand or slightly above that and the body was kept over the filling. The vase near the head might have been placed more or less along with the body. The significance of this kind of separate pottery vessels kept at different places in the burial pit and positions is to be understood. However, it may be presumed that the pottery vessels kept at different places of the burial pit and positions indicates its relevance and certain meaning in relation to the departed soul. The position of the dish-on-stand underneath the hip portion is also of significance as it may indicate that the deceased individual is placed securely over a firm base. The relevance and cross-linking with literature is also to be understood in this context. The evidences from the ancient literature will be dealt separately in Chapter 6.





Fig. 5.80 & 5.81: Burial 1, Sanauli, showing stages of removal



Fig. 5.82: Burial pottery after removal of skeletal remains, Burial 1, Sanauli



Fig. 5.83: Details of burial pottery, Burial 1, Sanauli

5.5.3.2 Burial 2

This is a primary burial (Category A) and belongs to a child, located to the south of Burial 1. The age of the child is estimated to 3 – 4 years. Its RL measures 228.93 m MSL, which is 29 cm below that of Burial 1. There is a strong possibility that this child might have belonged to the individual buried in Burial 1. This is only an assumption based on the close proximity of the child burial with Burial 1. Further, the Burial 1 is found with two copper bangles, one each in the arms, which may also indicate that the individual may be a female.

In that instance, there is a strong possibility that Burial 2 was the child of the individual in Burial 1. Another burial with which Burial 2 can be associated is Burial 100 whose RL is 228.71, which is more or less within the same depth of Burial 2. In this case, the child burial is located to the northwest of Burial 100, the latter will be discussed in detail under 5.5.3.100.

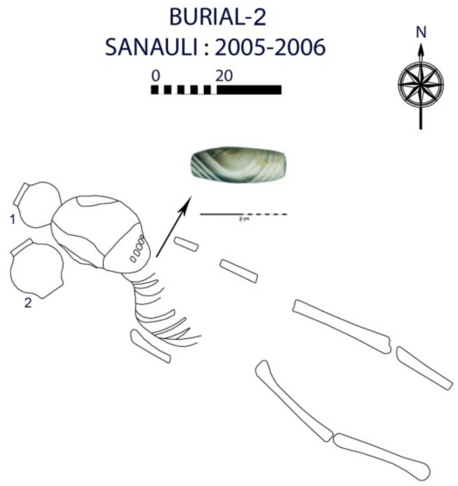


Fig. 5.84: Burial 2, Sanauli

This is an extended inhumation burial with the body placed in a supine position. The legs and the hands are kept straight. The lower portion of the hands is missing. Similar is the case with the lower portion of legs. The ribs are also not well preserved. This may be surmised due to the nature of bones in a child. The extant height of the child is 49.6 cm.

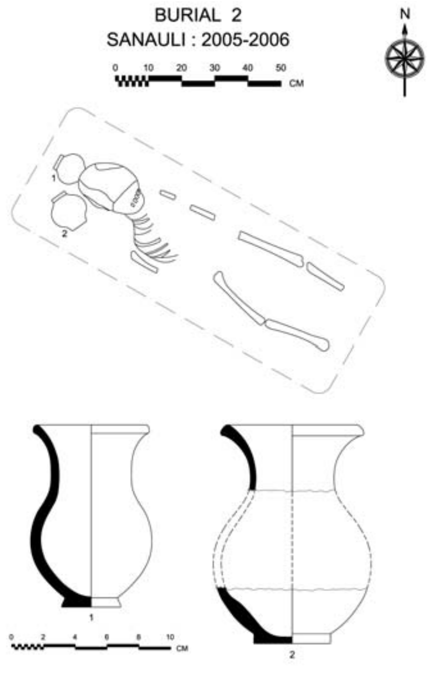


Fig. 5.85: Burial 2 and pottery forms



Fig. 5.86: Burial 2, Sanauli

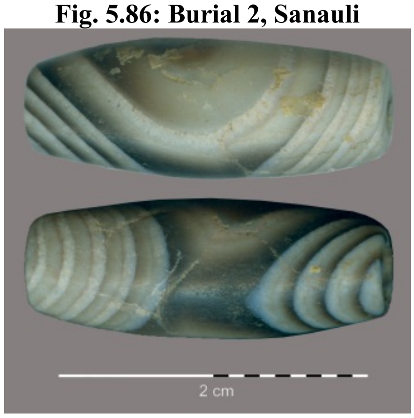


Fig. 5.87: Details of agate bead, Burial 2

Burial 2 is also in a northwest – southeast orientation with a 60.34^0 offset to the left of true north. Associated with this child burial are two lota shaped jars placed near the head and immediately to its north and northwest.

5.5.3.3 Burial 3

This burial is a completely disturbed one even though it is a primary burial (Category B) and the orientation can be easily determined from the position of burial pottery and approximate orientation of the bone fragments. This burial is also in a northwest – southeast orientation with 52.82^0 offset to the left of true north. This burial is located in the southern mid portion of trench YB2. This burial is also located in the area deeply affected by the levelling operation of the villagers. Hence, there are two possibilities for the destruction to this burial.

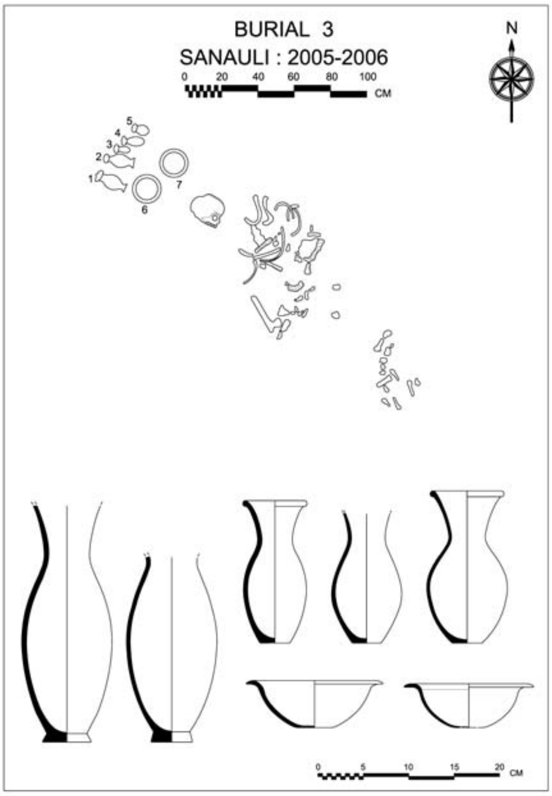


Fig. 5.88: Burial 3 and pottery forms, Sanauli

The first is the disturbance caused in antiquity when digging for other burials disturbed an already existing burial. The second possibility is that the burial was disturbed due to the levelling operation. The first possibility seems to be more plausible because the burial pottery is *in situ* condition while the other bone portions like skull, longer bones, clavicle, ribs, etc., are clumsily located at the central portion of what might have been the burial pit.



Fig. 5.89: Burial 3, Sanauli

The burial pottery is found *in situ* condition and it consists of two bowls and five vases. However, the presence of other burial pottery cannot be ruled out as this burial is disturbed largely. The overall findings from this burial tally with the other ones in terms of placement of pottery near the head at the northern portion of the burial pit and NW – SE orientation.

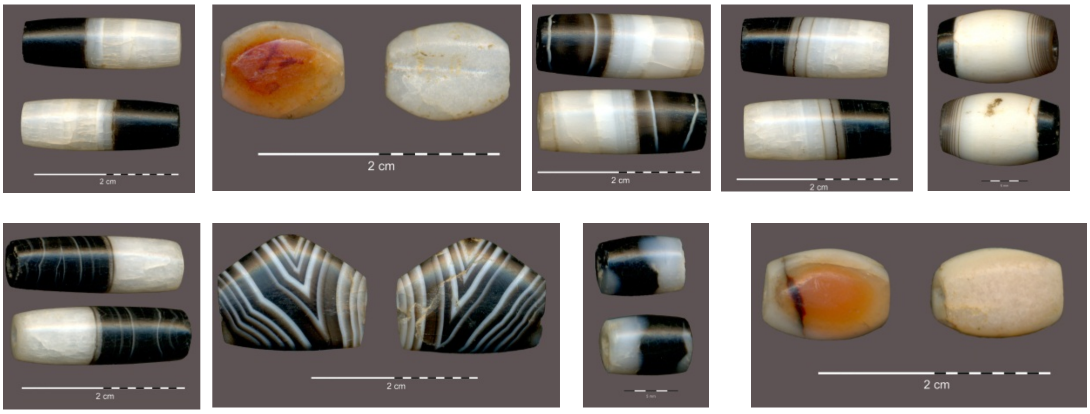


Fig. 5.90: Beads from Burial 3, Sanauli

5.5.3.4 Burial 4

This is a primary burial (Category A) and located to the southeast of Burial 1 and its RL is 229.18 m MSL. The burial was located very close to the surface and was affected by the ploughing and levelling operation. It was due to this fact that the half portion of face could not be found during the excavation. This burial is oriented in the northwest – southeast direction and 54.53^0 offset to the left of true north. The individual interred is a female. The burial is an extended inhumation with the skeleton placed in supine position. The body and the legs are placed in a straight position except the hands. The right hand is placed straight along the right side of the body, while the left hand is bent below the elbow and touching the forearm of right arm, crossing the body at the mid portion. The femur and toe portion of the

legs are damaged and not found. The extant height of the individual taking into account of the toe portion comes to 1.42 m.

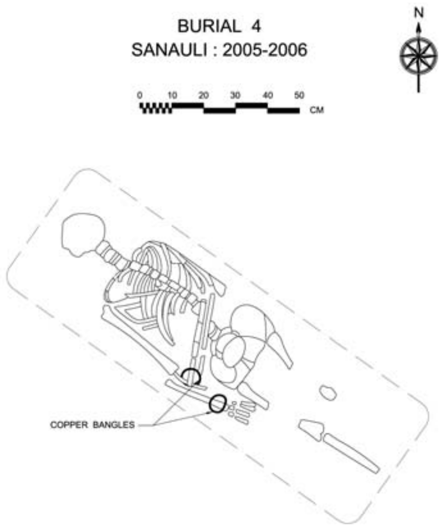


Fig. 5.91: Burial 4, Sanauli

This burial is devoid of any burial furniture. The chances may be that as the burial is disturbed being located close to the surface, the burial furniture might also removed or damaged. The ornament wore by this individual consists of two copper bangles, one in each arm. The copper bangles are circular in shape and section and solid in nature.



Fig. 5.92: Burial 4, Sanauli

5.5.3.5 Burial 5

The feature termed as Burial 5 (Category E) by the excavators is not associated with any skeletal remains and consists of only a group of pottery vessels found in the trench YA1 at a RL of 229.23 m above MSL. The pottery vessels consist of a dish-on-stand, two bowls, a jar and a bowl-pot. All the pottery vessels are found to be *in situ* position and could have formed part of a burial with these vessels kept at the mid portion below the skeleton. However, one possibility is that these pottery vessels could not have formed part of a separate burial is not ruled out.

This is because the bowl types are not generally found placed below the body and are only found placed near the head and at the northern portion of the

burial pit. One more possibility is that these pottery vessels are disturbed ones and formed part of some other burial nearby. In the present scenario, only speculations could be made in the absence of any hard evidence, as this is an isolated condition of pottery vessels found very close to the surface.

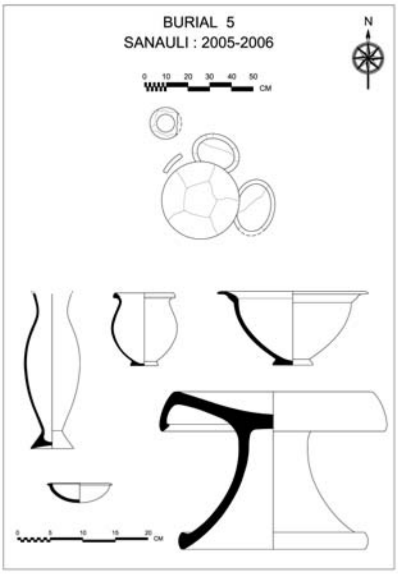


Fig. 5.93: Burial 5 and pottery forms, Sanauli



Fig. 5.94: Pottery remains from Burial 5, Sanauli

5.5.3.6 Burial 6

This is a primary burial (Category B) but highly disturbed and the portion above the upper part of femur is missing completely. The evidence indicates that it was oriented in northwest – southeast direction with 57.9^0 offset to the left of true north. The evidence also indicates that the burial is an extended inhumation with the skeleton might have kept in supine position.



Fig. 5.95: Remains of Burial 6, Sanauli

The burial is found at a depth of 40 cm below the peg ZA1 and it is likely that the disappearance of upper portion of the skeleton is due to the location of another burial namely, Burial 16 immediately towards the northwest of this burial. The bottom portion of the skeleton of Burial 16 overlaps with the upper portion of Burial 6 and hence there is a strong possibility that while digging the burial pit of former, the skeleton of the latter was disturbed, removed and set aside. This is a normal practice noticed in ancient cemeteries, as the burial pit of later period disturbs the earlier ones.

The evidence from Harappa Cemetery R 37 is an excellent example for this kind (Kenoyer: Personal communication). In this regard, the cluster of disturbed, fragmentary bones and pottery to the northeast of Burial 6 deserves special attention. These could have been the remains of disturbances caused to Burial 6 during the digging operation of Burial 16 and whatever found was disposed off nearby to make way for the new burial. However, it is also stressed that again this is a circumstantial evidence only. The Burial 6 consists of only the lower portion of the femur, tibia, fibula and tarsal bones.

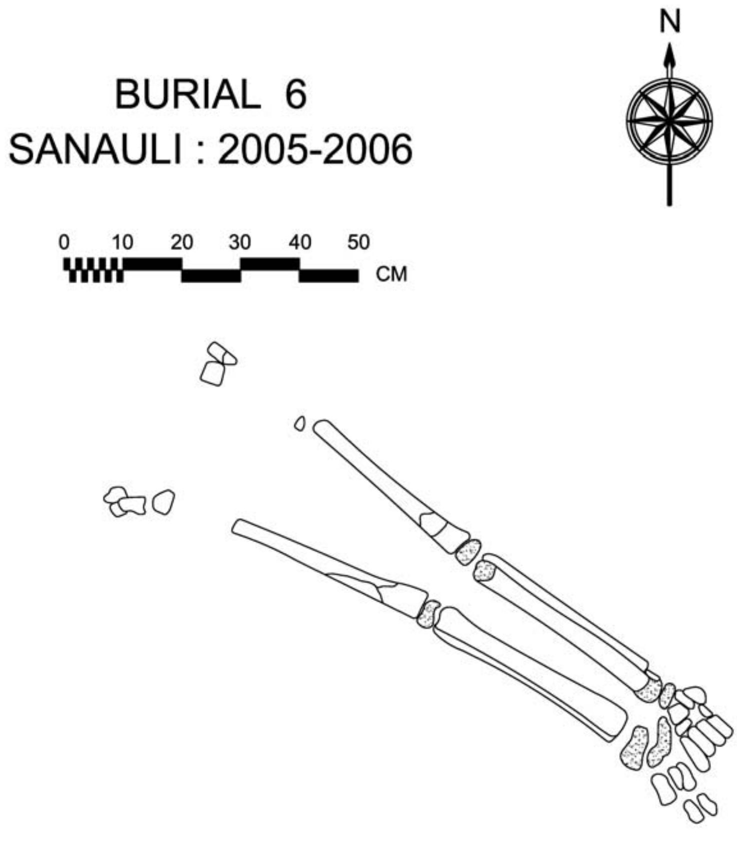


Fig. 5.96: Burial 6, Sanauli

5.5.3.7 Burial 7

This is a primary burial (Category B), but disturbed due the close proximity to the surface. This burial is located in the trench YB1 at its mid-southern portion and its RL measures 229.22 m above MSL. The burial is oriented in northwest – southeast direction with 51.20^0 offset to the left true North. The burial is an extended inhumation one with the individual placed in supine position. The skull is damaged and the front portion of the face is completely removed due to its close proximity with the surface. The compressed position of the upper part of the body indicates that as in the case of Burial 1, the individual in this burial also might be wrapped tightly in a cloth.



Fig. 5.97: Burial 7, Sanauli

This could be gathered from the position of the shoulder joints of arms as well as the compression of the ribs. The upper portion of humerus is dislocated from the socket joint of shoulder, which clearly indicates the tight wrapping. The pelvis is also damaged to a larger extent. The personal jewellery found from the burial include three agate beads. The beads are found *in situ* and close to the chest portion of the deceased individual which indicates that they formed part of a necklace. Two of the beads have slightly broken end, which indicates their continuous usage by the person interred.

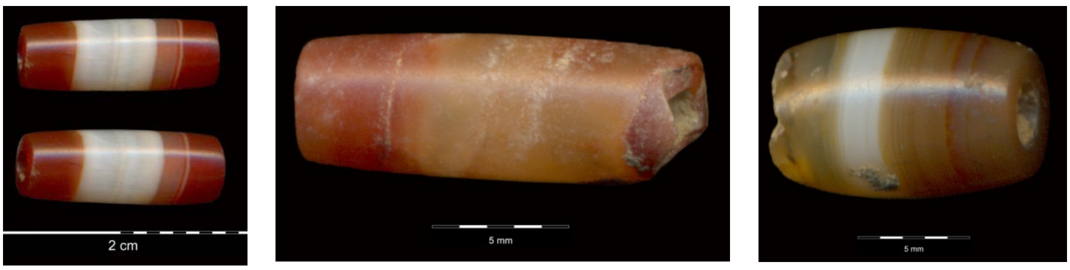


Fig. 5.98: Bead remains from Burial 7, Sanauli

The hands are placed straight and both the arms are placed straight even though due to the very tight wrapping of the upper body, the elbow portion of the arms are shifted outwards, thus making the shape of a diamond. The arms rest on the

pelvis portion. The legs are also placed straight with the toe portion touching each other.

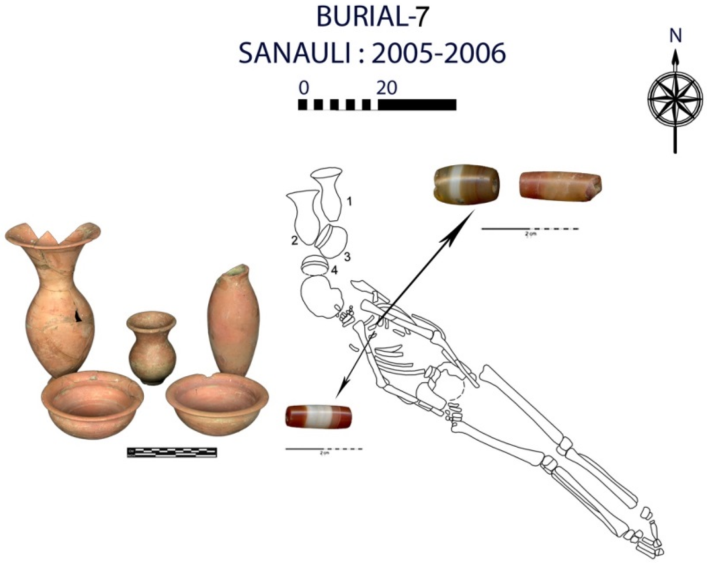


Fig. 5.99: Burial 7, Sanauli

The burial furniture consisted of pottery vessels placed near the head but at a lower level below it. The pottery vessels consist of two jars, a *lota* shaped jar and two bowls.

5.5.3.8 Burial 8

This burial (Category E) is located very close to the surface and disturbed due to the levelling operations in a major way. This burial is located in the mid-northern portion of trench YB2. This burial is only represented by the burial furniture consisting of pottery vessels kept at the northern portion and central portion of the burial feature.

The burial is also indicated only due to the presence of this pottery, which tallies well with the normal arrangement of burial goods as gleaned from other burials. The orientation of the burial could be made out from the general arrangement of the pottery and it is of northwest – southeast with 52.14^0 offset to the west of true north. The original nature and context of the burial could not be determined due to the highly disturbed nature. The burial pottery consists of two parts. The first part is located near the northern part of the burial feature, which is kept normally near or below the head. This assemblage consists of nine jars and two bowls.

The jars are characterised by high necked and wide flaring mouths and with a bright red slip. The bowls are shallow and are represented with a flaring out rims. The second part of the pottery goods are kept approximately at the hip portion of

what would have been a complete burial, if a skeleton were found. This assemblage consists of a bowl-on-stand and a deep bowl. The bowl-on-stand from the Sanauli assemblage is another pottery form, occurring along with the dish-on-stand and mostly found near the hip portion of the skeletal remains.



Fig. 5.100: Burial 8, Sanauli



Fig. 5.101: Burial 8, Sanauli



Fig. 5.102: Burial 8, Sanauli

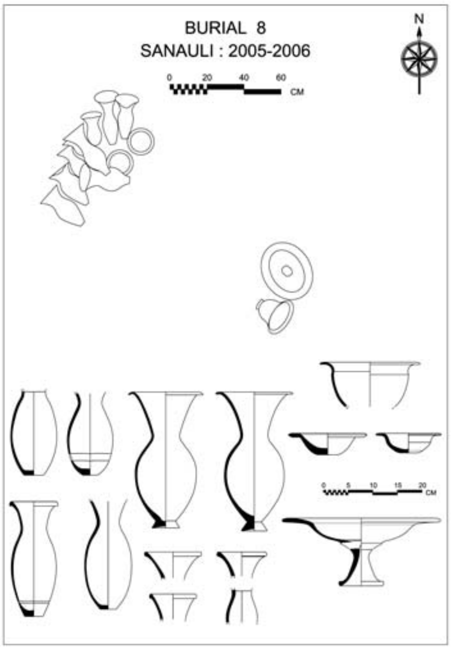


Fig. 5.103: Burial 8 and pottery forms, Sanauli

5.5.3.9 Burial 9

This burial (Category E) is also disturbed like Burial 8 due to the levelling operation and its proximity to the surface level. The burial is represented only by the

presence of pottery and based on its arrangement the orientation can be deduced to northwest – southeast with 61.37^0 offset to the left of true north. The burial pottery is arranged in two groups, as is the normal case in the burials here. The first group is placed at the northern part of the burial feature and consists of four jars and two bowls. The jars are similar to Burial 8 with high neck wide mouths. Out of the four jars, one is of black slip and polish, the remaining red in colour and similar to the finds from Burial 8. The second group of pottery is represented by only the stand portion of a dish-on-stand, the dish portion being completely broken and not available.

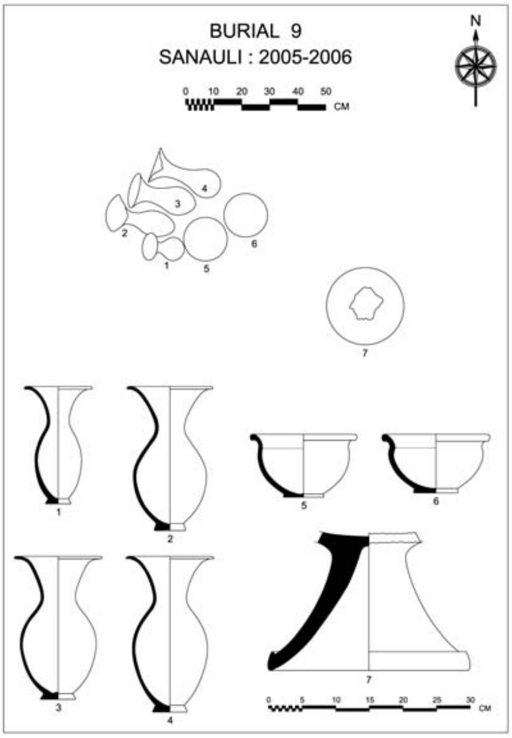


Fig. 5.104: Burial 9 and pottery forms, Sanauli

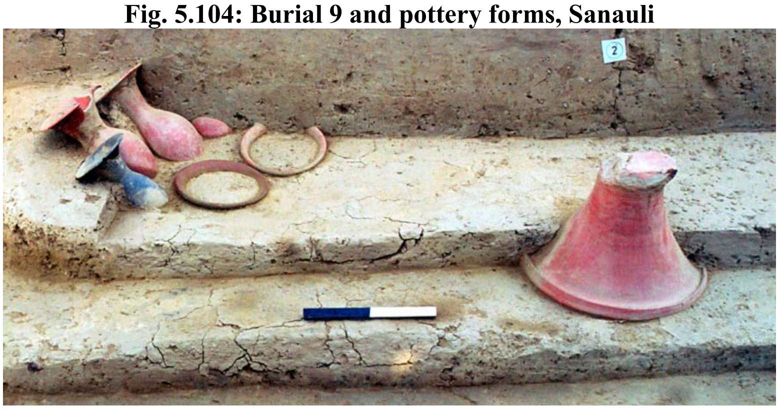


Fig. 5.105: Burial 9 showing pottery remains, Sanauli

5.5.3.10 Burial 10

This burial (Category B) is located in the mid-northern portion of trench YD3. The orientation of the burial is in northwest – southeast with 51.52^0 offset to

the left of true north. The burial is located at 228.96 m above MSL. This burial is disturbed and only portions of skull and long bones were found. The burial is an extended inhumation one and disturbed. This burial seems to have disturbed an already existing burial, which is recorded as two separate burials, but actually a single burial. They are Burials 81 and 105, which actually belong to a single burial and disturbed due to the digging of grave pit for Burial 10. A detailed description of the Burial is given at 5.5.3.81.



Fig. 5.106: Skeletal remains of Burial 10, Sanauli

5.5.3.11 Burial 11

This burial belongs to the Category D, and is highly disturbed. Only one femur is preserved and other remaining fragmentary bones are clustered here and there with a major cluster towards the northwest. The orientation of these bones indicates the original orientation of the burial in a northwest – southeast direction. The alignment of the available femur bone is taken for measuring its offset to the left of true north as 38.31^0.



Fig. 5.107: Skeletal remains, Burial 11, Sanauli

5.5.3.12 Burial 12

This burial belongs to the Category E and consists only of groups of pottery. However, the general arrangement of the pottery indicates its *in situ* condition and in

an northwest – southeast orientation with 59.78^0 offset to the left of true North. The burial is located in the southeastern part of the trench YD3 and at 228.18 m above MSL.

The arrangement of pottery vessels is in two parts, one group near the northern part of the burial feature, and represented by three jars and two bowls. The second pottery feature is an isolated dish-on-stand with a squat stand.



Fig. 5.108: Burial 12, Sanauli

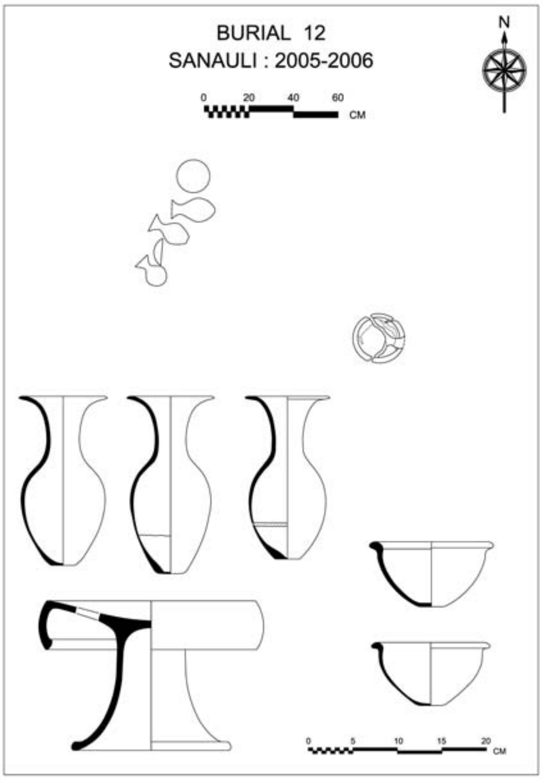


Fig. 5.109: Burial 12 and pottery forms, Sanauli

5.5.3.13 Burial 13

This burial belongs to Category B and is an extended inhumation burial with the skeleton kept in supine position. The burial is oriented in northwestern – southeastern direction with 57.6^0 offset to the left of true North. The burial is located in the mid-western portion of the trench YA2 and is at 228.72 m above MSL. Only the remains of lower portion of a skeleton is found in the burial.

The upper portion above the top of femurs has completely disappearance due to its proximity to the surface and several other possibilities like agricultural and levelling operations carried out by the local villagers. Only a portion of pelvis immediately above its junction with femur is found. The burial pottery consists of two groups again. The first group is located at the northwestern portion of the burial

feature and consists of four jars and two bowls. The jars and bowls are red in colour with traces of slip over them.



Fig. 5.110: Burial 13, Sanauli

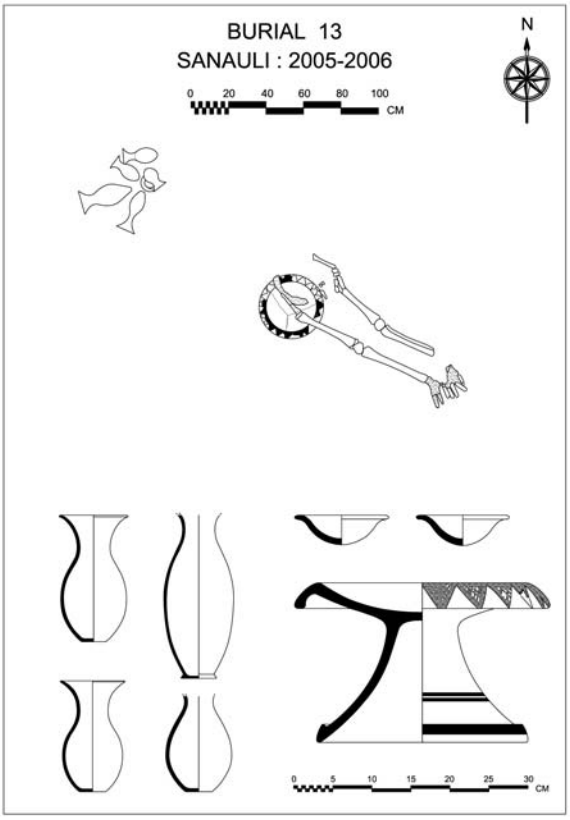


Fig. 5.111: Burial 13 and pottery forms



Fig. 5.112: Burial 13, Sanauli

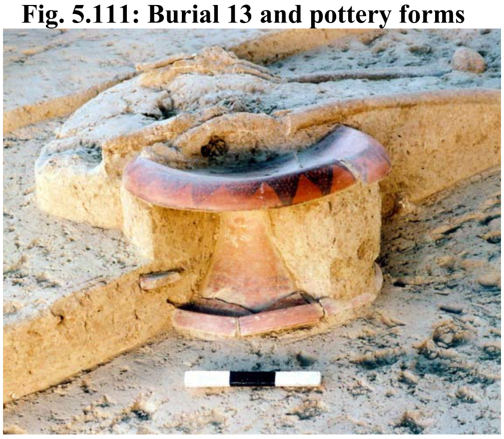


Fig. 5.113: Dish-on-stand from Burial 13

The second feature of the burial pottery is the location of a dish-on-stand directly below the hip portion. The location of dish-on-stand is similar as in the case of Burial 1. However, here the body had been kept in direct contact with the top portion of dish-on-stand as indicated by the hip bones lying directly over the pottery surface. Thus, the location of dish-on-stand below the hip portion provides direct link to some sort of ritualistic importance given to this pottery. The dish-on-stand from this burial is also decorated with black coloured geometrical decorations all

along the outer lip of the drooping rim. The decoration, which is executed over the red surface, consists of a series of triangles filled with checker pattern.

5.5.3.14   Burial 14

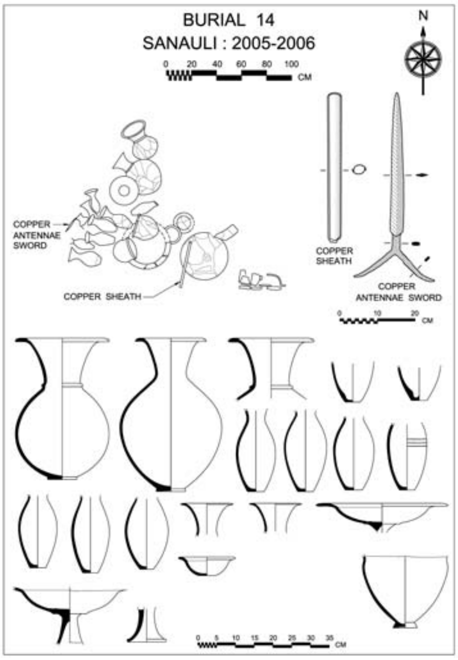


Fig. 5.114: Burial 14 and pottery forms, antenna sword and sheath, Sanauli

Yet another unique discovery at Sanauli is the recovery of an antenna sword with sheath, both made of copper, from a burial (Burial 14). So far, neither an antenna sword has been found along with the sheath nor it has been found in the grave from any site in India. This burial is placed in the category of symbolic burial, (Category C) as no evidence of skeletal remains is found, even though the complete paraphernalia of burial goods and copper weapon is found here.

The burial is located in mid-southern portion of the trench YD3 and at 227.11 m above MSL. The burial, even though symbolic in nature is oriented in a northwest – southeast direction with 58.26^0 offset to the left of true North. This burial, found in the lowest level, it may be noted, had no skeletal remains. It contained only the antenna sword and 18 pottery vessels – 9 jars, 4 bowls, 2 dishes-on-stand, and 3 big jars – placed to the northwest of the burial. The big vases are distinct from other vase types from the burials.

These are having globular body with a high neck and wide mouth. The sheath was found placed across in the middle of the grave upon a dish-on-stand kept upside down. Some fragmentary pots on the other hand, were found placed towards the southeast. The sword, which is placed in an upright position, the tip pointing

towards sky, was undoubtedly deliberately placed so in association with the sheath at a place where the body of the dead should have been in position.



Fig. 5.115: Burial 14, Sanauli



Fig. 5.116: Burial 14, Sanauli

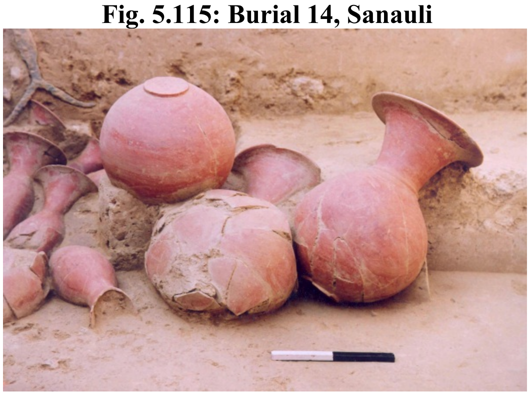


Fig. 5.117: Pots *in situ,* Burial 14



Fig. 5.118: Burial 14 and 15, Sanauli



Fig. 5.119: Burial 14, Sanauli



Fig. 5.120: Burial 14, Sanauli

The findings from this burial are of utmost significance due to the presence of antennae sword, which is a well-known repertoire of copper hoards. The occurrence of antennae sword along with a copper sheath, which actually consists of two copper sheets, shaped in semi-circular forms in section and combined together in a circular form, from a burial clearly indicates the probable contacts and intercourse between the late Harappans of this regions and people of copper hoard.



Fig. 5.121: Copper antenna sword and sheath, Burial 14, Sanauli



Fig. 5.122: Details of sword and sheath



Fig. 5.123: Detail of copper sheath



Fig. 5.124: Detail of copper sheath



Fig. 5.125: Detail of copper sheath

5.5.3.15 Burial 15

This burial belongs to the Category B, which is a primary burial, yet disturbed largely. This burial is located in the mid-southern portion of the trench YD3 in a northwest – southeast orientation with 64.11^0 offset to the left of true North. The burial is located at 227.83 m above MSL and the lower part of the burial is directly above the extreme upper portion of Burial 14. A clear burial pit was also found in this burial, unlike other burials, wherein a pit could not be delineated due to the continuous watering activities and irrigation done by the local villagers, which had made the separation of different layers very difficult due to its merging. The skeletal remains consist of a long bone kept in the distinct NW – SE orientation and parallel to the burial pit. The position of the long bone indicates that this is an extended inhumation type. All the burial pottery kept towards the northern portion of the burial has fallen in one direction. This indicates its original position kept

vertically which have fallen due to the filling of the burial pit by earth after interment of the deceased body. This is also an indication of placement of burial pottery at a lower level than that of the dead body.



Fig. 5.126: Burial 15, Sanauli



Fig. 5.127: Burial 15, Sanauli

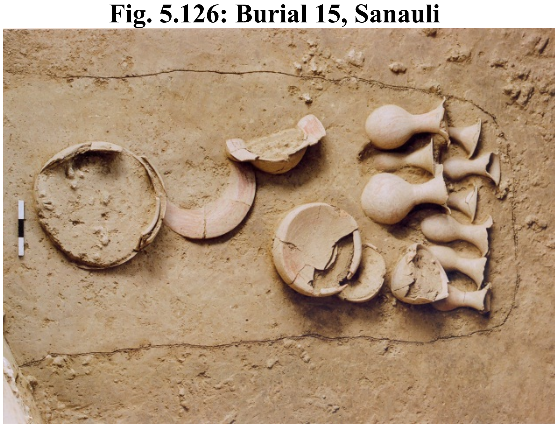


Fig. 5.128: Burial 15, Sanauli

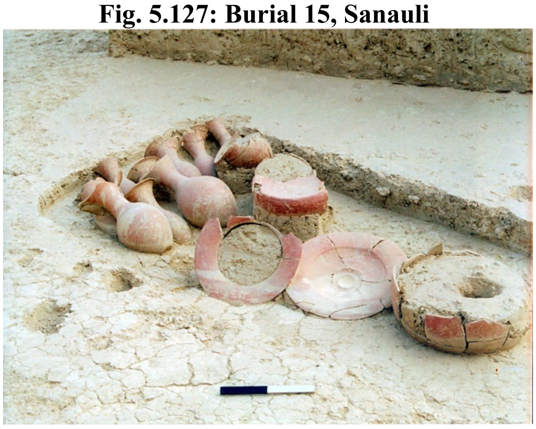


Fig. 5.129: Burial 15, Sanauli

This burial is also embellished with a variety of burial pottery, most of them placed to the northwestern portion of the burial pit. The pottery assemblage consists of 9 jars, out of which two are large sized ones and different from the remaining 7 jars; 2 deep bowls / basins, 1 upper portion of dish-on-stand and two bowl-on-stands, one with shallow and other deep bowl. The large-sized jars have a globular body, while the remaining jars have a less globular shaped body. The bowls-on-stand and dish-on-stand are kept just to the south of the vases assemblage, and at a slightly upper position in relation to the hip portion of skeletal remains.

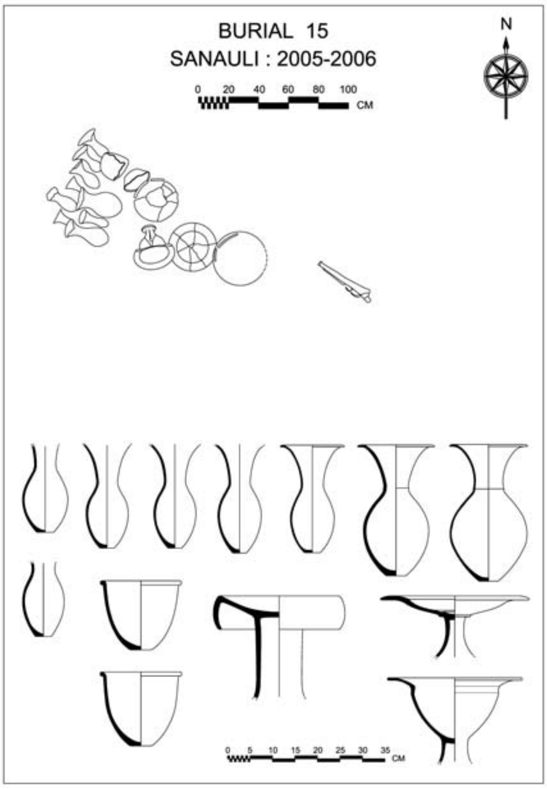


Fig. 5.130: Burial 15 and pottery forms, Sanauli

5.5.3.16 Burial 16

Burial 16 belongs to Category B and is located in the northwestern part of the trench YA1. Only the lower portion of a skeleton, with portions of two femurs, represents the burial and portions of tibia and tarsals are also available. This is a primary burial but in a disturbed condition as the upper portion of the skeleton completely missing. The placement of the longer bones indicates a northwest – southeast orientation with 80.66^0 offset to the left of true North. In other terms, this burial is more or less in the east – west orientation and thus might represent a different burial tradition / custom. However, in the absence of other burial goods like pottery and ornaments, it is difficult to conclude anything on the variation in the orientation.



Fig. 5.131: Skeletal remains of Burial 16, Sanauli

As explained under 5.5.3.6, there is a very good possibility that this burial caused damage to Burial 6, which is located to its east. The activity for making a burial pit for Burial 16 could have damaged Burial 6, as is witnessed from the missing upper portion of latter and accumulation of bits and pieces of pottery and fragmentary bones, named as Burial 31. Even though as per the RL Burial 6 is placed 22 cm above Burial 16, the overlapping of lower portion of former with upper portion of latter clearly demonstrates the possible destruction in antiquity.

5.5.3.17 Burial 17

This burial belongs to Category A and is located at the mid-western portion of the trench YA1 at 228.95 m above MSL. This burial is located to the south of Burial 16. The burial is a primary burial with an extended inhumation type and the skeleton is placed in supine position. The burial is placed in northwest – southeast orientation with 56.11^0 offset to the left of true North. The burial contains a human skeleton in a more or less well preserved and complete condition. The skeleton is in supine position with the arms and legs placed straight and extended. The arms are placed along the sides of the respective body sides.



Fig. 5.132: Burial 17, Sanauli



Fig. 5.133: Details of Burial 17

While the left arm is placed flat, the right arm placed along the right side of the body and rests on right thigh, with two fingers actually resting on femur bone.

This is clearly an intentional posture in which the body was kept during interment into the burial pit.

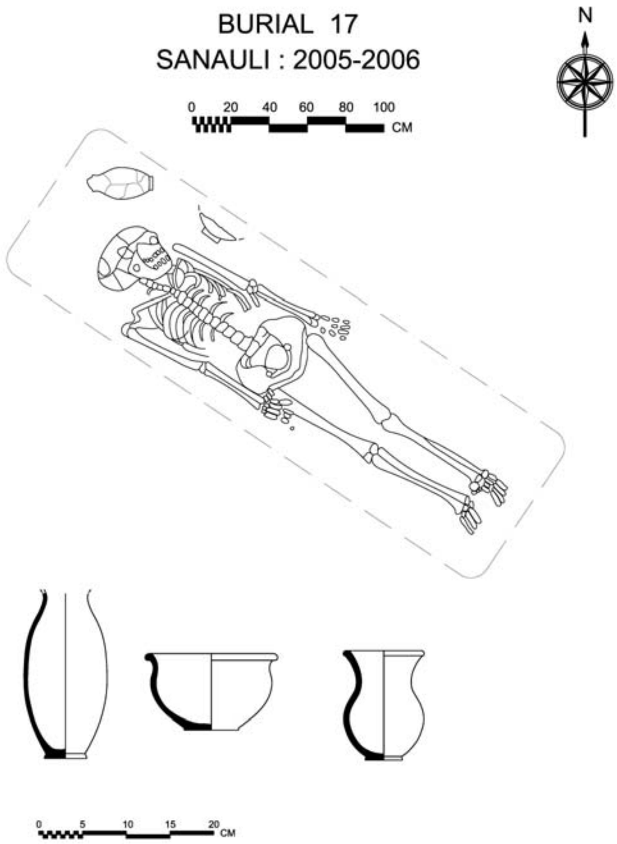


Fig. 5.134: Burial 17 and pottery forms, Sanauli

This posture also adds certain significance as variation in arm position in witnessed in several burials. Unlike Burials 1 and 7 which shows evidence of tight wrapping of the body, this burial is extraordinarily flat and the shoulder bones do not show any form of deviation or compression. Thus, it is also assumed that some individuals were placed with their bodies tightly wrapped in a cloth and some others were not. This is a clear indication of certain burial customs and beliefs of the past society even though they were using the same cemetery area.

The burial furniture consists of pottery placed near the head and along the left side of the body. The position and context of the burial pottery also indicates some disturbances caused to them in antiquity as they are in a topsy-turvy condition.

5.5.3.18 Burial 18

This burial belongs to Category B and is located along the western portion of the trench YA1 at 229.01 m above MSL. The burial is a primary / disturbed one as the right portion of the upper body is missing along with parts of the skull. The burial is in northwest – southeast orientation with 76^0 offset to the left of true North.



Fig. 5.135: Burial 18, Sanauli

Thus, it is evidenced that along with Burial 16, this burial is more or less in an east – west orientation, indicating a slightly different group following different burial customs and beliefs. The burial is an extended inhumation type with the skeleton placed in supine position. The individual interred is a female. The upper portion of the skull is badly damaged and not preserved due to its proximity with the surface. The right portion of the body is not preserved and missing. The left portion of the ribs along with the left arm and the lower portion of body is preserved. The legs are placed in an extended and straight form and the toes are not touching each other unlike Burials 1 & 7.

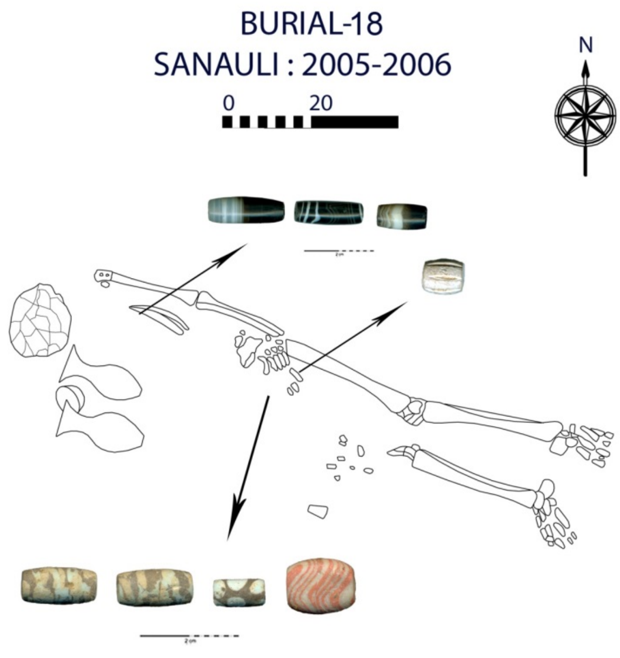


Fig. 5.136: Burial 18, Sanauli

Thus, it may be presumed that even placing of the legs and toes in a certain position vary from burials to burials, and suggest some sort of customs and traditions. The left hand is placed along the body in a straight position with the palm

and fingers resting on the left portion of pelvis and upper femur. This burial is embellished with burial pottery and beads of agate.

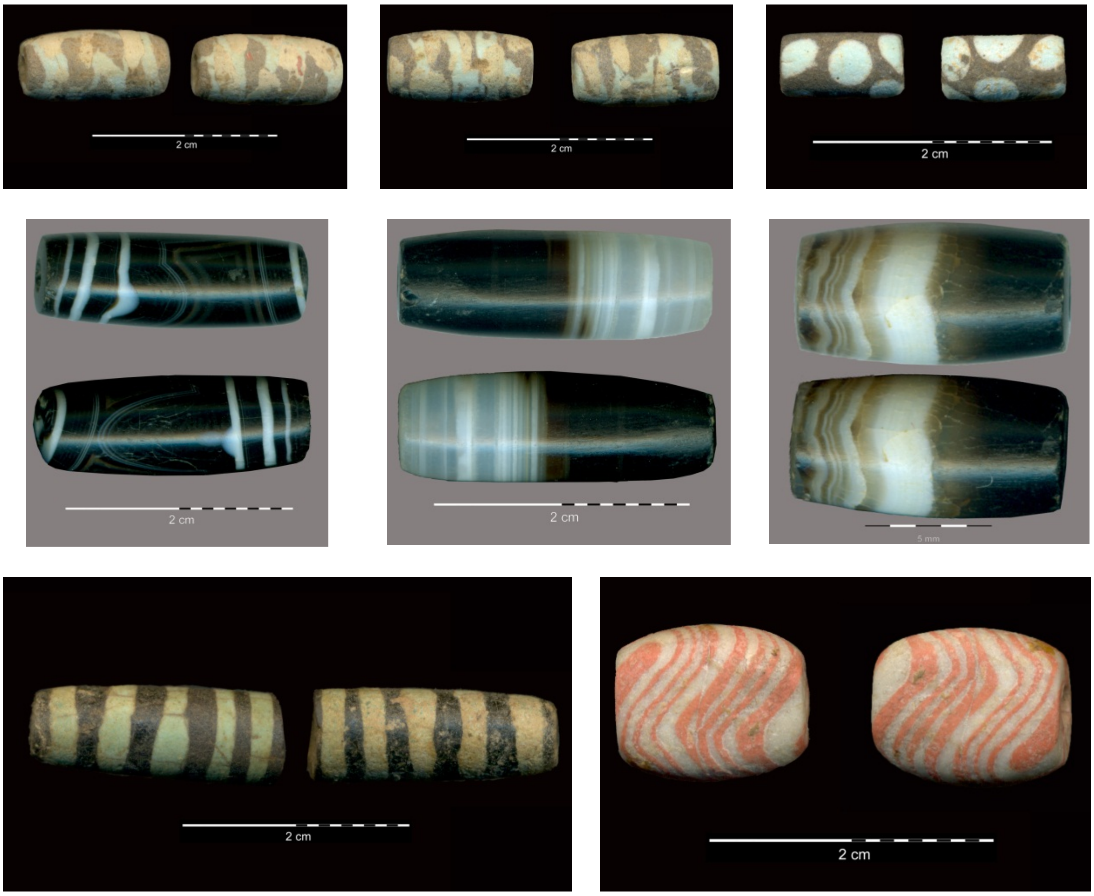


Fig. 5.137: Bead remains from Burial 18, Sanauli

5.5.3.19 Burial 19

This burial belongs to the Category B and is thus a primary one, but disturbed largely. This burial is located in the mid-southern portion of trench YB1 and 229.16 m above MSL. This burial is in northwest – southeast orientation and 63.05^0 offset to the left of true North. The burial is an extended inhumation type and from the position of arrangement of skeleton, it can be presumed that it was in supine position. The upper portion of the skeleton is completely missing and even the lower part of the body is preserved only to the extent of longer bone of left leg and fragment of longer bone of right leg. Another interesting feature that was noticed on analysis is that the burial feature named as Burial 46 consisting of four pottery vessels, 2 vases and 2 bowls, could have formed part of the Burial 19. This burial is disturbed during some time in the past and hence the upper part is missing. A large terracotta block of uneven shape is found in the space between the burial pottery and lower half of skeleton.



Fig. 5.138: Skeletal remains, Burial 19, Sanauli

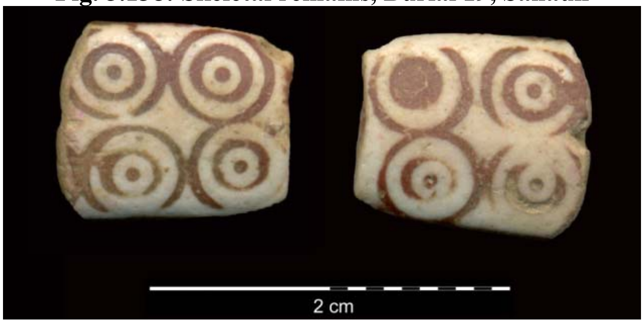


Fig. 5.139: Bead find, Burial 19, Sanauli

5.5.3.20 Burial 20

This burial is a disturbed one and belongs to Category D. The burial is located in the southeastern corner of trench YA2 at 229.31 m above MSL. This burial feature is also located very close to the surface. The burial feature is highly disturbed one and only consists of fragmentary bones scattered here and there. There are two fragments of parts of long bones, skull and smaller fragments. The longer bones are aligned in northwest – southeast direction and from the orientation and arrangement it can be deduced that it belongs to a burial placed in the above-mentioned pattern. However, in the absence of further evidence it is difficult to identify the burial pattern.

5.5.3.21 Burial 21

Burial 21 belongs to the Category A and is located in the northwestern part of the trench YD3 and at 228.86 m above MSL. The burial is in a northwest – southeast direction with 44.22^0 offset to the left of true North. This burial is a primary one, extended inhumation type and the skeleton is placed turned towards the east. The upper portion of the skeleton above the pelvis is only turned towards the east direction, with the head also turned to east as though it is facing the rising sun.

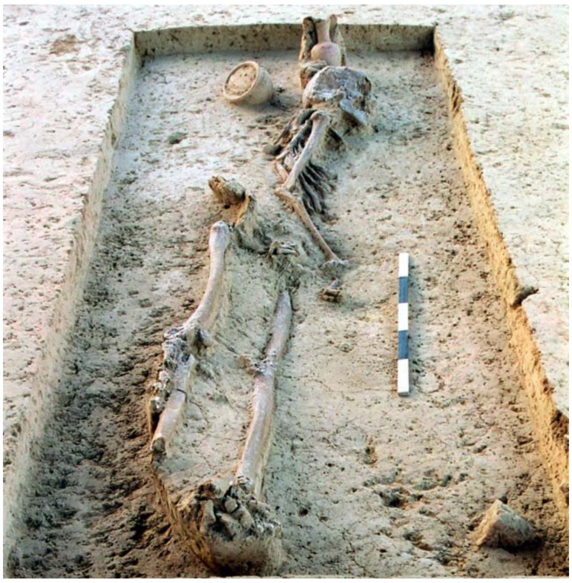


Fig. 5.140: Burial 21, Sanauli

The skeleton below the pelvis portion is laid down in the normal manner and both the legs are extended and placed straight. The burial is only partially excavated and from the evidence and documentation available, it can be easily seen that the right hand is placed over the body up to the elbow and the lower arm is seen bended forwards and the arm resting on the ground. The left cheek portion of the skull also rests on the ground thus facilitating its position to turn to the east. The pelvis of the skeleton is only partially preserved. The individual interred is a female.

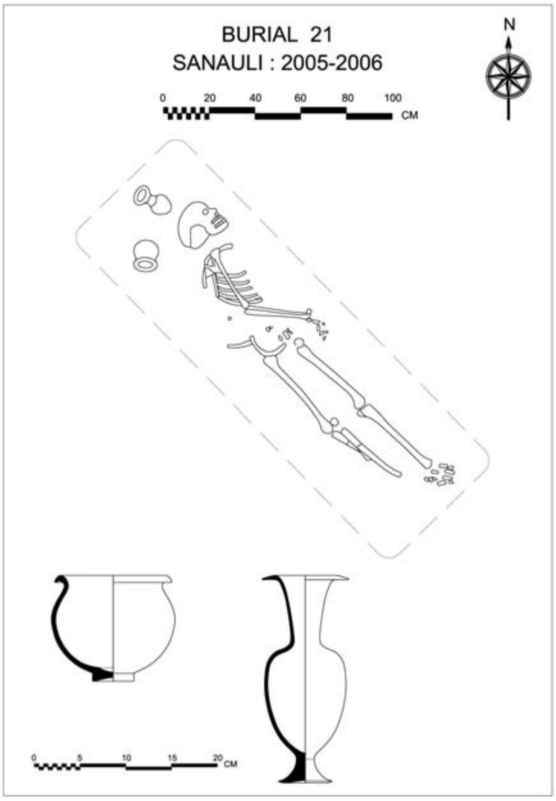


Fig. 5.141: Burial 21 and pottery forms, Sanauli

The burial furniture consists of pottery placed near the head and at the northwestern part of the burial. The burial pottery consists of only two vessels, comprising of a jar and a bowl pot.

5.5.3.22 Burial 22

Burial 22 is located in the middle portion of the trench YD3 and at 228.93 m above MSL. This burial belongs to a sub-adult and placed in northwest – southeast direction with 48^0 offset to the left of true North. The age of the individual is around ten years. The burial is a primary one belonging to Category A and of an extended inhumation with the skeleton placed in supine position.



Fig. 5.142: Burial 22, Sanauli

The skeletal remains indicate a fair state of preservation. The hands and legs are placed in an extended position. The hands are placed straight by the sides of the respective parts of the body. The left leg is found to bend inwards at the knee portion, while the lower part of right leg is missing. The burial furniture consists of pottery remains placed near the head and at the northwestern part of the burial. The burial pottery consists of two vessels, a jar and a bowl of red ware.

5.5.3.23 Burial 23

Burial 23 belongs to the Category B and is a primary one, but disturbed to a little extent. The burial is located in the mid-western portion of the trench YA1 and 228.78 m above MSL. The burial is oriented in the northwest – southeast direction with 67.75^0 offset to the left of true North. The individual interred is a male. The burial in of the extended inhumation type with the skeleton placed in supine position. It has been observed that a portion of the ribs and right shoulder is damaged and not available. Otherwise, the burial is fairly preserved. The upper portion of the body is

also raised considerably and the head is placed over the burial pottery, more particularly, on the dish-on-stand kept below it.



Fig. 5.143: Burial 23, Sanauli

The right arm is placed along the side of body and the palm rests on the right part of pelvis, with two or three fingers touching the upper femur portion. This posture is similar to that of Burial 18 wherein the left arm is placed in this condition with two fingers touching the upper femur part. The left arm of Burial 23 is interestingly placed. The humerus is placed along the body and then the arm is bent crossing the body and palm placed across and slightly touching the humerus of right arm. The legs are placed straight and extended with the toes of both the legs touching each other.

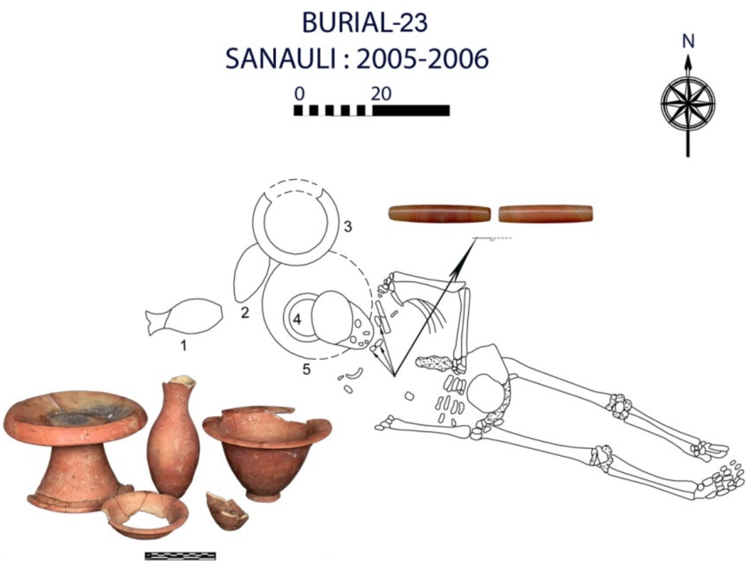


Fig. 5.144: Burial 23, Sanauli

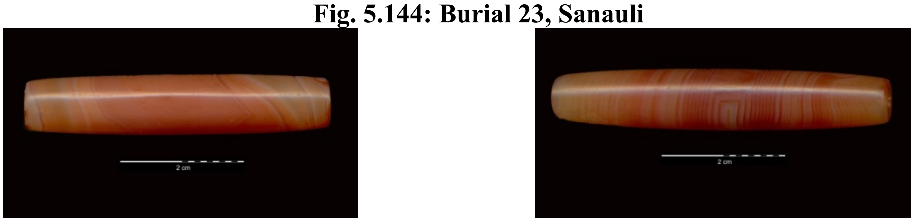


Fig. 5.145: Long barrel agate beads, Burial 23, Sanauli

The burial furniture is placed near the head and at the northwestern portion of the burial. The pottery group consists of two jars, two bowls, one shallow and other deep and a dish-on-stand. The evidence indicates that before interment of the deceased body, the rituals were performed by placing the burial pottery towards the northwestern portion of the burial pit. Then the body was placed and the evidence also indicates that either the burial pit was unintentionally shorter in length and hence the upper portion of the body was pushed forward and raised in order to accommodate inside the pit, or the head of the body is placed intentionally over the dish-on-stand. Either way, the placement of pottery underneath the head of the body indicates a slight deviation.

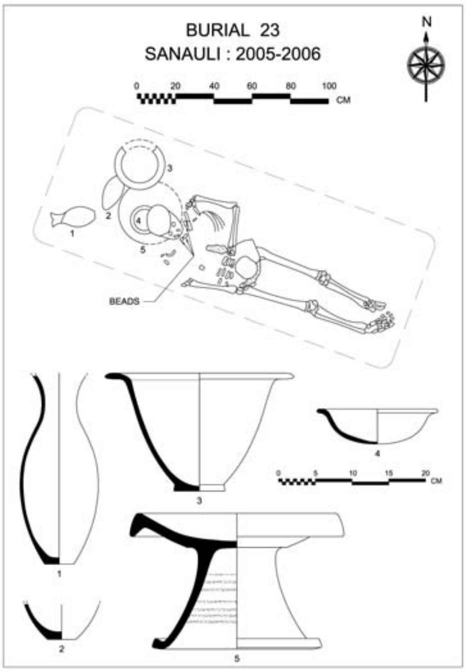


Fig. 5.146: Burial 23 and pottery forms, Sanauli

Further, here the dish-on-stand is found near the head unlike Burials 1, 13, etc., wherein it is placed below the hip portion. Another interesting feature is the placement of a small shallow bowl directly over the dish-on-stand, which is also uncommon among the burials here. The ornaments found from this burial include two long barrel agate beads drawing parallels of Harappan types. The beads are red in colour, indicating the traditional heat treatment given to agate nodules by the Harappans to produce the typical red colour of carnelian. Further, the sources of agate / carnelian are local and should have come from the Gujarat region, as the raw materials for making such beads are abundant. It is also interesting to note the route in which these beads / raw materials could have reached Sanauli area. The technical

analysis of these beads may lead to sourcing the raw material zones in a proper manner.

5.5.3.24 Burial 24

The Burial 24 is an extended inhumation one with the skeleton placed in supine position. The burial belongs to the Category A and is located in the centre of the trench YA1 at 228.93 m above MSL. The burial is oriented in the northwest – southeast direction and 57.84^0 offset to the left of true North. The burial is located in close proximity of other burials like 17, 16, 6 and 30. Among these the bottom portion of this burial slightly overlaps with Burial 30. The position of the skeleton in Burial 24 is also interesting. The skeleton seems to have been deliberately put inside a smaller grave pit of shorter length.

The grave diggers were probably aware of the Burials 17 and 30 and hence they accommodated this burial in whatever space available. The result is that the skeleton is bent at the pelvic portion with the upper and lower parts of the body placed above the level of hip portion. The skeleton is also in a fair state of preservation upon excavation. The arms of the skeleton is found bent across at the elbow portion and placed crossed over the body touching the opposite parts of the pelvis. The legs were placed straight but in a level higher than the pelvis as explained above. The toes of the legs are touching each other.



Fig. 5.147: Burial 24, Sanauli

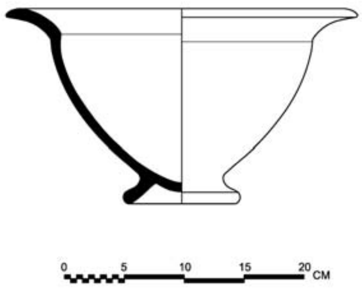


Fig. 5.148: Pottery form from Burial 24, Sanauli

The burial furniture consists of a deep bowl kept near the head at the northwestern part of the burial. The deep bowl is also characterised by a ring stand. The bowl is placed below the head of the skeleton, which rests over it. The position of the bowl is very similar to that of Burial 23 wherein a dish-on-stand is placed directly below the head. The position of the pottery good and the skeleton indicates that in the case of this burial also the pottery was placed first inside the grave pit in a ritualistic manner and then the body was stuffed inside within the available space in between other burials. Thus the circumstantial evidence indicates that this burial is later than Burials 17 and 30.

5.5.3.25 Burial 25

This burial belongs to the Category A and is found in trench YD2 at 228.3 m above MSL. This is an extended inhumation burial with the skeleton placed in supine position with the face turned towards the north-northeastern direction. The orientation of the burials is northwest – southeast direction with a 75.15^0 offset to the left of true North. The head is placed towards the northwestern direction and the legs towards the southeast direction. Thus, this burial is also in a more or less E – W orientation and along with other Burials 16 and 18. The most striking feature of this burial is the completeness in terms of the skeletal remains. The individual seems to be a fully-grown adult with the extant height measuring 1.64 m indicating a taller stature. The individual interred is a female.



Fig. 5.149: Burial 25, Sanauli

The individual was laid on the back over the ground and the hands and legs are placed straight. The hands are placed along the side of body, bent below the elbow, cross the body and both arms touch each other above the pelvic portion. The legs are placed straight and the toes touch each other, the left toe resting on the right one. The head is slightly turned towards the east-northeastern direction, indicating its position to face the rising sun. The position of ribs indicates some sort of deformation. The left rib portion is well preserved and flat when compared to the

right rib portion. There is also a possibility of wrapping the body in a cloth, which is deduced based on the compressed position and condition of ribs. On removal of the skeleton, at a lower level and below it, was found two pottery vessels, one a large bowl and other a jar. The jar is decorated below the shoulder portion. The decoration consists of three bands, the upper and bottom band consisting of vertical strokes, and the middle band is of joined peak like features, all executed as low relief incised patterns. These three bands are intervened by horizontal lines again executed in low relief incisions.

5.5.3.26 Burial 26

This burial feature belongs to the Category E and is located in trench YB1 at 229.08 m above MSL. This is an isolated occurrence of only pottery belonging to the burial pottery typology. The pottery cluster consists of three vases, one larger and globular in shape and other two are smaller jars, the latter characterised by a bright red colour slip. The upper portion of the pottery is broken and damaged being its proximity to the surface.



Fig. 5.150: Remains of Burial 26, Sanauli

5.5.3.27 Burial 27

This burial belongs to the Category B and located in mid-eastern portion of trench YD3 at 228.56 m above MSL. The orientation of the burial is in northwest – southeast direction with a 51.62^0 offset to the left of true North. This burial has been reported as a double burial.[136] The burial is described as follows:

> *"A noteworthy discovery from the site was a double burial, Burial 27, from the middle levels. This burial displayed bones of two male skeletons, aged between 30 to 35 years, arranged in north-south orientation, laid with usual burial pottery."*

The pottery repertoire from this burial are reported as *"…..four medium-sized flask-shaped vessels with flat base, and a rimless small bowl having convex*

sides and concave base, were placed towards the head, the dish-on-stand (dish having a horizontally-splayed out rim, tapering stem, basal part broken and missing) was placed in the middle of the grave, below the hip portion of the skeletons."[137] The individual interred in the burial is tentatively identified as a male, and only one individual could be determined.



Fig 5.151: Burial 27, Sanauli

However, after removal of the skeletal remains, the dish-on-stand turned out to be a complete bowl-on-stand. Among the items of ornaments found in this grave are included a beautifully decorated long, bead of steatite, and another of the milky white banded agate. The steatite bead, the most exquisitely finished example, was found placed close to the neck of one of the two bodies. It was also noted that there was only one skull, that of a male which was partly damaged, whereas all other skeletal remains – long and short bones, including rib bones, bones of pelvic girdle, etc. – are in two sets belonging to two individuals. The placement of bones, however, suggests that the skeletal remains of both the men were buried at the same time. As the burial does not display extended position of the two bodies, it further suggests that bodies were brought from some distant place, but the rituals were performed in respect of both, perhaps jointly. As a parallel one can only quote the example of the 'double burial' of Lothal, a Harappan site of Gujarat.

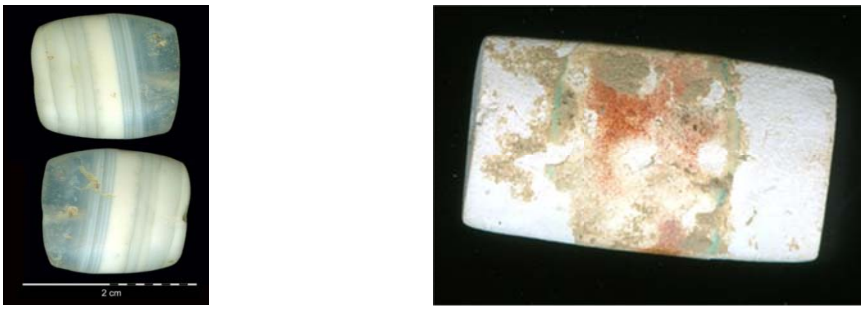


Fig. 5.152: Bead remains from Burial 27, Sanauli

It is pertinent to observe that in majority of the burials, the dish-on-stand / bowl-on-stand has been found placed either below the hip, or near or below the head; only in a few instances, it has been found placed close to the feet. It clearly suggests that the dish-on-stand was an integral part of the burial furniture at Sanauli, as has

also been observed at Lothal, Kalibangan, Dholavira, and various other Harappan sites in India and Pakistan. This ‘offering stand’ is found either supporting human bodies, or containing offerings in terms of grains or preparations made out of them, or else meat.

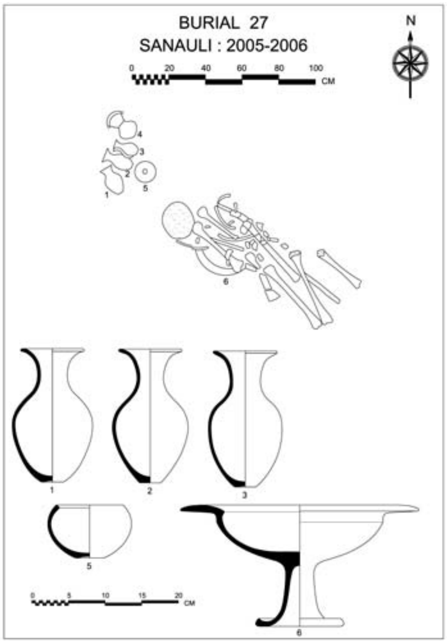


Fig. 5.153: Burial 27 and pottery forms, Sanauli

5.5.3.28 Burial 28

This burial belongs to the Category C and is located in southern portion of ZA8 at 229.33 m above MSL. This burial is in northwest – southeast orientation with a 51.73^0 offset to the left of true North. This burial contained two *mushroom*-shaped twin dish-on-stands in association with a copper container (?), preserving 28 tiny flattened stylized copper objects. Besides, there is a fragmentary animal jaw and a broken brick bearing three grooves marked by fingers. This feature is equally unique. To the east of it was traced a burnt-brick wall, oriented northwest and southeast. The orientation of this wall is exactly the same as the burials. This is equally unique not reported at any Harappan cemetery.



Fig. 5.154: Burial 28, Sanauli



Fig. 5.155: Brick wall, Burial 28, Sanauli



Fig. 5.156: Dishes-on-stand, Burial 28



Fig. 5.157: Dish-on-stand and copper container, Burial 28

The dishes-on-stand placed in the graves are of typical shapes with rims of upper and lower portions drooping. One of them is taller. Its dish has prominently drooping rim, curve and slender stem, and circular base having upward raised and incurved rim. The other, the smaller one, differs from the taller example in having straight edges of the stem as well as of the base rim. The most significant grave-good of this burial is the violin-shaped copper container, made out of a copper strip. It resembles the human torso.



Fig. 5.158: Details of copper container



Fig. 5.159: Copper container



Fig. 5.160: Copper anthropomorph (?)

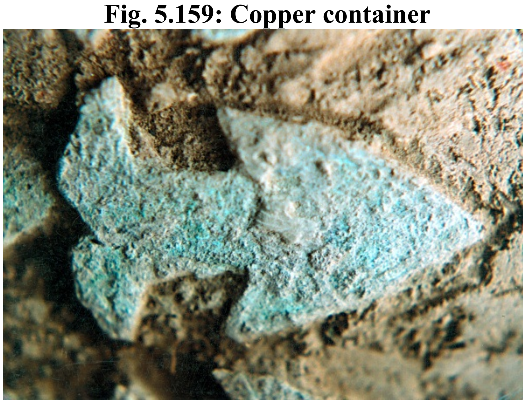


Fig. 5.161: Details of anthropomorph (?)

It is found decorated with 28 extremely thin and tiny stylized copper objects, which are arranged in six rows, divisible in two opposing sets, with three rows in

each. Each single row contained six of them. Some of the rows are now disturbed, but the arrangement of these copper objects suggests that there might be originally 36 such objects, of which 8 are now missing. The shape of these objects is also very significant. While their upper part resembles an arrowhead, the lower part looks like a tang, split in two parts, which are curved in opposite directions.

The placement of 36 such objects in a shallow copper container resembling a human torso is of special significance. This burial feature might have been a community enterprise for 36 individuals who died in some distant land or the 36 arrowhead features may represent a warrior, an exceptional archer who died and in his memory, this feature was erected.

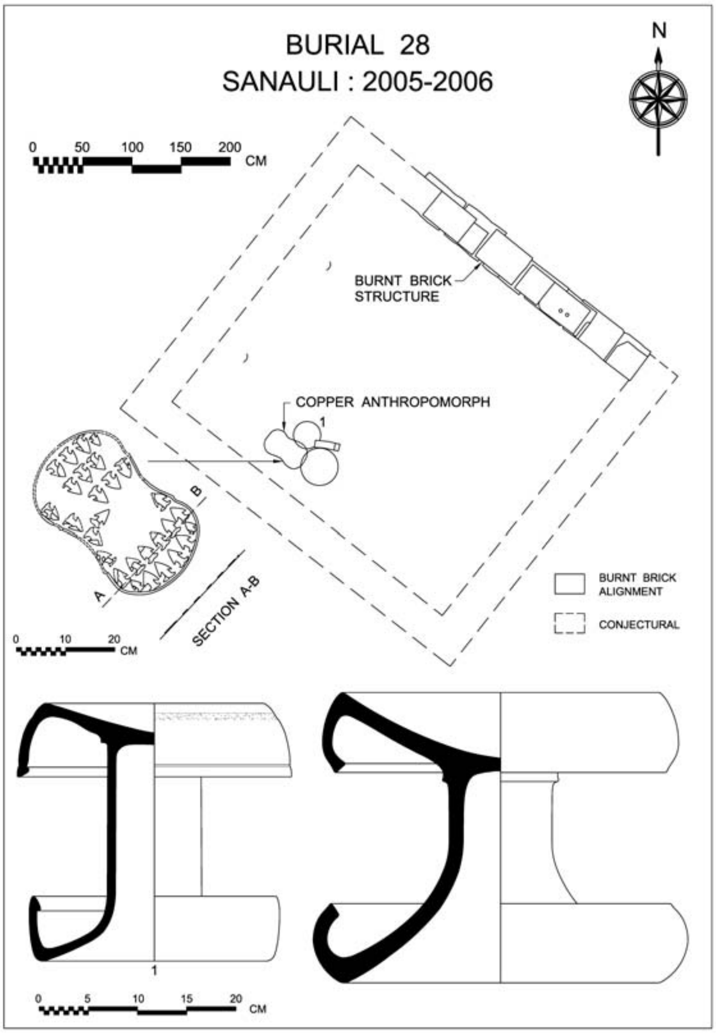


Fig. 5.162: Conjectural restoration of Burial 28, along with details of copper container, stylised copper figures (anthropomorphs ?) and pottery forms, Sanauli

One more noteworthy feature of this burial is a burnt-brick wall with finished inner face, which, as stated above, is running parallel to the burial in the east. Three other walls, if these were at all there, are not traceable now. Preserved to a length of

3.70 m, with a width of 38 cm and height of 39 cm, it has only five courses extant. The bricks used in the construction of the wall were of aberrant size, measuring 50 X 38 X 6 cm or so. The complete length of the wall could not be traced because of the limitations of the area of excavations, still there are indications of its extension in both the directions. Apparently, it was meant to demarcate not a single burial but a group of burials.

As in some other symbolic burials, this burial also has yielded a fragmentary burnt-brick bearing three grooves made by fingers on one face of it. The presence of such burnt bricks do not seem to have been lying here accidentally. They seem to have served some specific ritual.

5.5.3.29 Burial 29

This burial feature belongs to Category D and is found in the southern portion of trench YD3 at 227.88 m above MSL. The burial feature consists of only fragmentary bones and pottery scattered here and there. The remains are of three fragments of longer bones with the ends missing and are placed, however in a roughly northwest – southeast orientation. It may be surmised that the burial feature belongs to a complete burial once, but was later disturbed and damaged.

5.5.3.30 Burial 30

This burial belongs to Category D and is located in mid-eastern portion of trench YA1 at 229.08 m above MSL. This burial is badly damaged and major portions of the skeleton are missing. The skeletal remains above the upper part of femur and below the tibia are completely missing. The orientation of the burial could be made out as the longer bones are found *in situ* condition and parallel to each other. The orientation of the burial is in northwest – southeast direction with a 55.45^0 offset to the left of true North.



Fig. 5.163: Skeletal remains, Burial 30, Sanauli

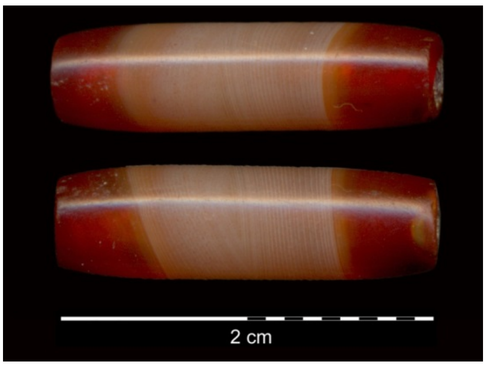


Fig. 5.164: Bead, Burial 30

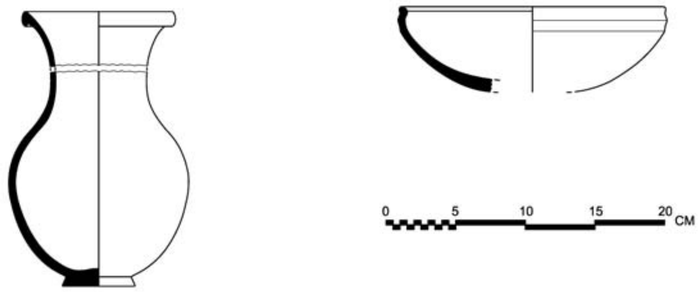


Fig. 5.165: Pottery forms, Burial 30, Sanauli

The burial furniture consists of three pottery vessels kept at the northwestern portion of the burial. The pottery consists of a *lota* shaped jar and a bowl.

5.5.3.31 Burial 31

This burial feature is of Category D and is located in the mid-northern portion of trench YA1 at 228.98 m above MSL. The feature consists of only fragmentary bones and pottery. The proximity of this feature with other burials like 6 and 16 and the latters disturbed character indicates that this feature might have been remains of either Burial 6 or 16. Among the burials 6 and 16, the lower portion of latter overlaps with upper part of former, which may indicate the disturbance caused to Burial 6 while digging of a grave pit for Burial 16. This is also explained above in 5.5.3.16.

5.5.3.32 Burial 32

This burial feature belongs to Category D and is located in the southeastern part of trench YB2 at 228.7 m above MSL. The burial feature consists of fragmentary bones and three pottery vessels only. The pottery consists of two lid-cum-bowls with the usual horizontally splayed out rims and a broken part of a jar.


Fig. 5.166: Burial 32, Sanauli

5.5.3.33 Burial 33

This burial feature belongs to Category D and is located in mid-eastern portion of trench YB1 at 228.95 m above MSL. The feature is a highly disturbed one and might not have formed part of a complete burial in its original position. They are highly scattered remains, consisting largely of animal bones, longer in

nature and phalanges along with fragmentary human bones. The excavator has described the feature in two stages. The upper one (Stage 1) consists of animal limb bones and phalanges, while the lower one (Stage 2) consists of animal mandible portions and fragmentary human bone remains. As this is isolated and scattered remains, no concrete information of any burial could be gleaned from them.



Fig. 5.167: Animal mandible remain, Burial 33, Sanauli

5.5.3.34 Burial 34

This burial belongs to Category B and is located in the mid-northern portion of trench YA2 at 229.18 m above MSL. The burial is of extended inhumation one and can be placed under the primary burial category. This burial is disturbed to a large extent that only the longer bones of lower body is preserved *in situ* while some more fragmentary bones are also available except ribs, skull and longer bones of upper body. The arrangement of longer bones of lower body found *in situ* condition clearly reveals its orientation in a northwest – southeast direction with a 44.95^0 offset to the left of true North. The burial is also located 23 cm below Burial 35. The digging of burial pit for this grave could have disturbed the upper portion of Burial 35 even though its burial pots are lying undisturbed. This may be because pottery vessels have been kept at a slightly lower level than the skeleton.

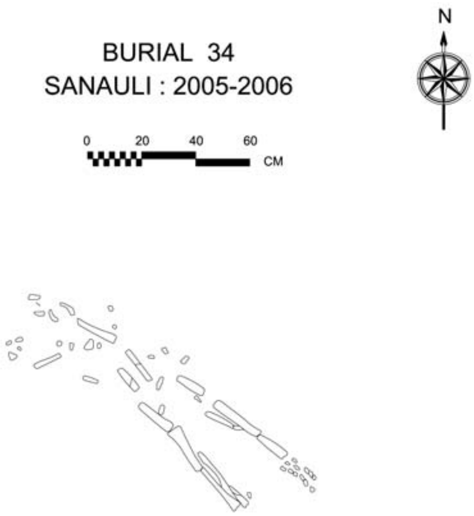


Fig. 5.168: Burial 34, Sanauli

5.5.3.35 Burial 35

This burial is of Category B and is located in the mid-northern portion of trench YA2 at 229.41 m above MSL. The burial belongs to an extended inhumation type even though it is highly disturbed. The placing of the skeletal remains along with the pottery vessels kept at the northwestern portion of the burial indicates its extended inhumation type. Only the lower portion of the skeleton represents the burial. The portion above the upper part of femur is completely missing and the remaining bones are found *in situ* condition. The skeletal remains are represented by the presence of both the femurs, with its upper part missing; the tibia and fragments of phalanges. The placement and arrangement of these skeletal remains indicate its orientation in northwest – southeast direction with a 43.32^0 offset to the left of true North. The burial furniture consists of pottery placed at the northwestern portion of the burial. The burial pottery consists of six jars and two bowls. Two of the jars have non-contiguous disc base, while the other four have a flat base. The bowls belong to the B3 variety of bowls described under 5.4.1.

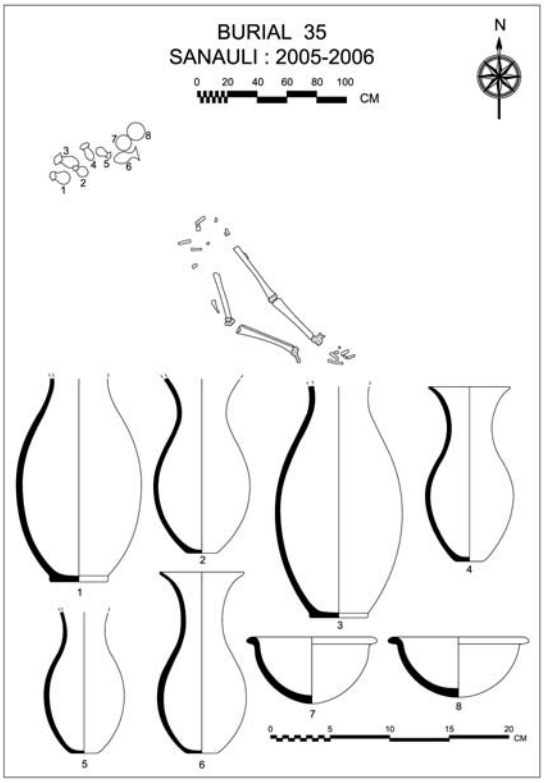


Fig. 5.169: Burial 35 and pottery forms, Sanauli

5.5.3.36 Burial 36

This burial belongs to Category A and is located in central portion of trench YB1 at 229.08 m above MSL. It is in a northwest – southeast orientation with a 42.86^0 offset to the left of true North. It is an extended inhumation burial and the

skeleton is found in supine position. This is a child burial the skeletal remains are more or less found intact except the smaller bones, which are missing. The upper portion of the skull is also missing due to its proximity to the surface. The age of the child is estimated to 4 – 5 years. The burial is not associated with any burial pottery. However, the child was originally adorned with ornaments in the form of stone beads.



Fig. 5.170: Skeletal remains of Burial 36, Sanauli

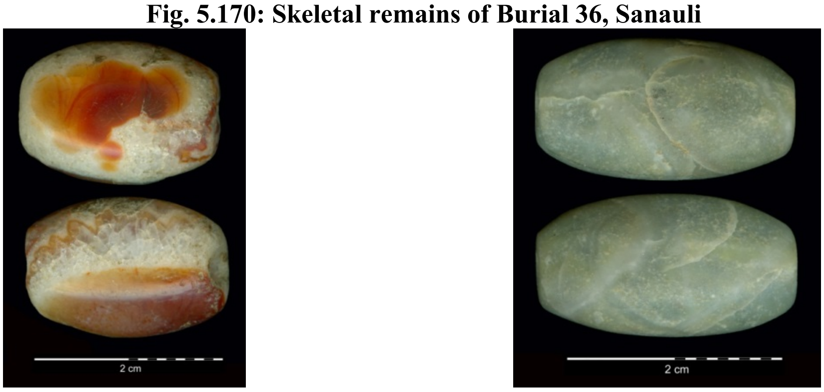


Fig. 5.171: Bead remains from Burial 36, Sanauli

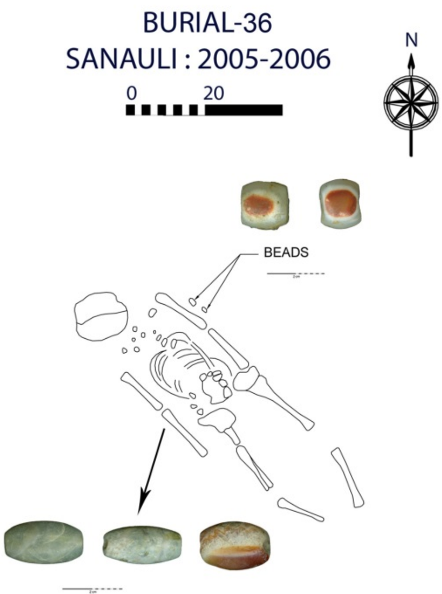


Fig. 5.172: Burial 36, Sanauli

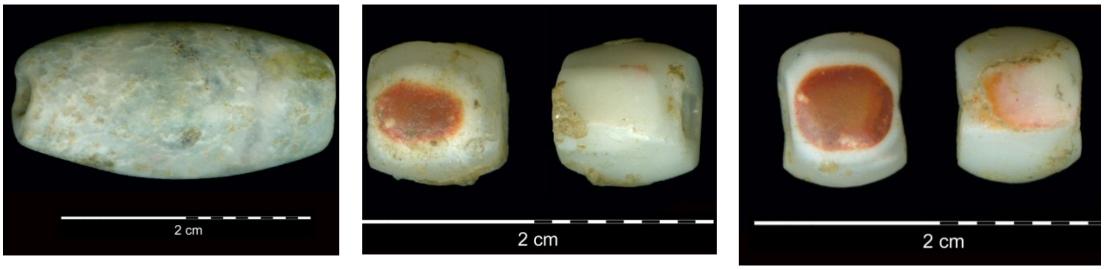


Fig. 5.173: Bead remains from Burial 36, Sanauli

5.5.3.37 Burial 37

This burial belongs to the Category B and is located in mid-western portion of the trench YB1 at 229.05 m above MSL. It is an extended inhumation burial type with the skeleton found in supine position. The orientation of the burial is in northwest – southeast direction with a 49.82^{0} offset to the left of true North. The individual interred is a male. The burial is placed under Category B due to the disturbance and non-availability of bones of the left ribs, lower arms, spine bones, right part of pelvis, etc. The skull is also damaged and a portion is missing.



Fig. 5.174: Skeletal remains, Burial 37, Sanauli



Fig. 5.175: Bead, Burial 37

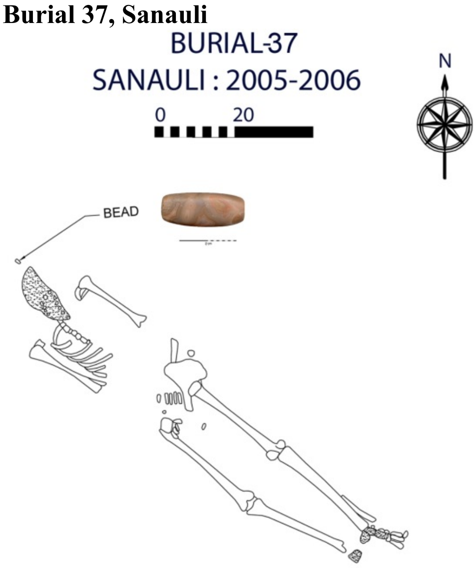


Fig. 5.176: Burial 37, Sanauli

The burial is placed in an extended position with the arms and legs placed straight. The position of the arms could not be made out below the elbow as it is

missing. The longer bones of the legs are better preserved with the toes of right leg missing. The toes of the left leg are turned towards the left.

5.5.3.39 Burial 38

This burial is of Category D and is located in the northeastern portion of trench YD2 at 229.04 and 30 cm below the surface, which is in close proximity to the surface. This is a highly disturbed burial feature and consists of only fragmentary bones of the skull and pelvis. The other bone remains and pottery associated generally with the burials are not found. The individual interred is a male.

5.5.3.39 Burial 39

This burial belongs to the Category D and is located in the northwestern portion of trench YD2 at 228.7 m above MSL and 55 cm below the surface. The feature consists of only fragmentary bones of animals and pottery. The animal bones are represented by longer bones while a complete miniature pottery was found.



Fig. 5.177: Disturbed skeletal remains, Burial 39, Sanauli

5.5.3.40 Burial 40

This burial feature belongs to Category E and is located in the mid-northern portion of trench YD2 at 228.31 m above MSL and 1.15 m below the reference peg. The feature is an isolated occurrence of only pottery remains. The pottery remains consist of two jars and a bowl. A big globular jar was also unearthed 15 cm below the above pottery cluster. The globular jar and the other pottery remains could have formed part of a single burial, the remains of which is not traceable now, and only pottery remains are found.



Fig. 5.178: Pottery remains from Burial 40, Sanauli

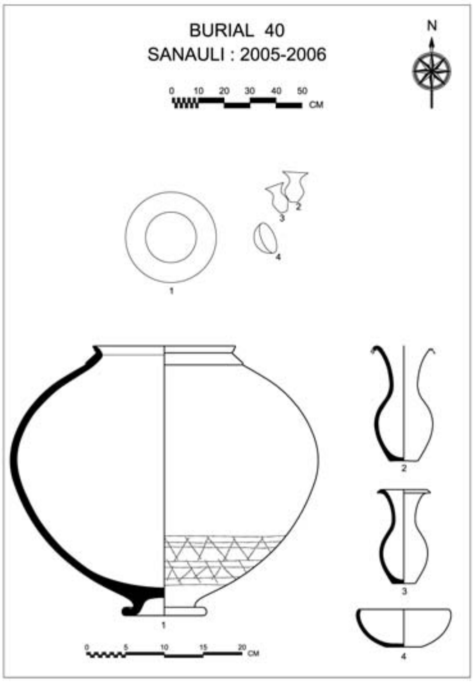


Fig. 5.179: Pottery forms associated with Burial feature 40, Sanauli

The globular jar is characterised by low relief incised decorations in the form of horizontal bands and cross-hatchings. It also has a ring base bottom marked by a pronounced beaded base.

5.5.3.41 Burial 41

This burial feature also belongs to Category E and is located in the mid-western portion of trench YD2 at 228.53 above MSL and 1.03 m below reference peg. This feature is represented by the occurrence of pottery only. The pottery cluster consists of two vases and two bowls. This feature lies in close proximity to another feature named as Burial 39, which is also a scattered cluster of bones and pottery. The relationship between these two features could not be made out due to lack of proper stratigraphical evidence. Nevertheless, both of them represent isolated and disturbed features and is not associated with any burial.



Fig. 5.180: Burial 41, Sanauli

5.5.3.42 Burial 42

This burial belongs to Category B and is located in northeastern portion of trench YC2 at 228.07 m above MSL. This is an extended inhumation burial with the skeleton found in supine position. The upper portion of the skeleton, above the pelvic portion is highly disturbed and only fragments of ribs and one longer bone of arm is found. The arrangement of the skeleton helps in identifying the orientation as northwest – southeast direction with a 59.54^0 offset to the left of true North.

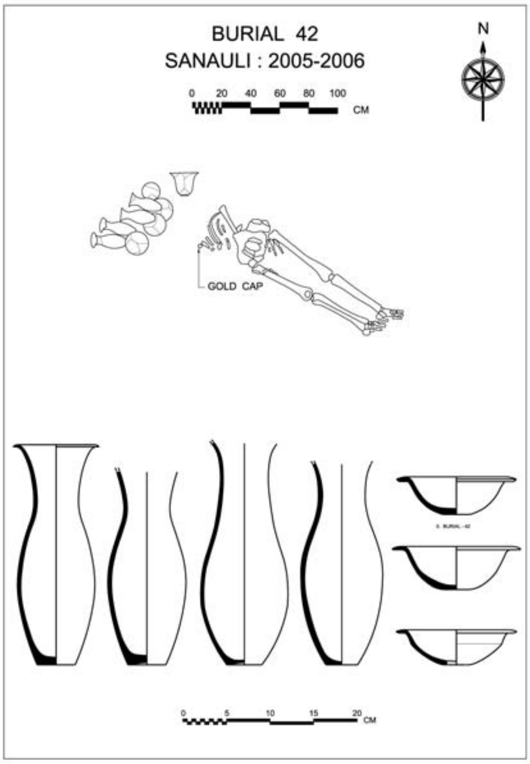


Fig. 5.181: Burial 42 and associated pottery forms, Sanauli

This is of a headless male human skeleton in association with a gold cap found at a lower level below the rib portion. The gold object has the striking resemblance with the modern commanding stick cap. In all probability, this special object indicates the privileged status of the dead. The details of the gold cap is described under 5.5.4.2 and hence not repeated here.



Fig. 5.182: Burial 42, with the location of gold cap indicated by white arrow

The burial furniture consists of pottery remains kept at a lower level at the northwestern portion of the burial. The burial pottery consists nine in number, placed in two rows, four jars placed in a row and four shallow bowls closely following them in another. A deep bowl is placed to the left of the lower row. The burial pottery cluster is found at a lower level than that of the skeleton, which again is an indicator of performance of certain rituals before interment of the deceased body.

5.5.3.43 Burial 43

This burial feature belongs to Category B and is located in the centre of trench YC2 at 228.56 m above MSL and 88 cm below the reference peg. The feature consists of fragmentary skeletal remains including parts of a skull and a solitary dish-on-stand. The dish-on-stand belongs to the typical dish with a drooping rim and a squat stem. The individual interred is tentatively identified as a male.



Fig. 5.183: Burial 43, Sanauli



Fig. 5.184: Dish-on-stand, Burial 43



Fig. 5.185: Dish-on-stand, Burial 43

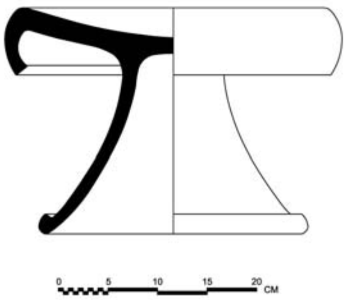


Fig. 5.186: Details of dish-on-stand, Burial 43

5.5.3.44 Burial 44

This burial belongs to Category B and is located in the central portion of trench YA2 at 228.98 m above MSL. The skeletal remains of this burial seems to be of more than one individual, all clumsily placed, nevertheless in a northwest – southeast direction at a 60.17^0 offset to the left of true North. The skeletal remains of one individual is represented to nearly 80% while that of the second individual is around 30%.

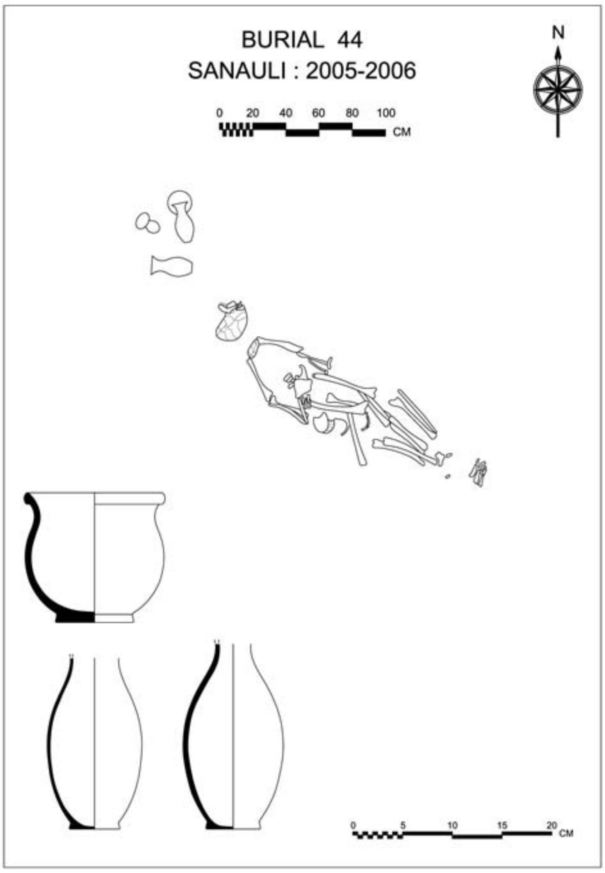


Fig. 5.187: Details of Burial 44 and associated pottery forms, Sanauli

There are remains of two skulls, one corresponding to the first individual, found at the right place, found even though in a disturbed condition. This skull is also found in an inclined position. Another fragmentary skull, not complete in nature, was found just down the pelvis of first individual along with a mandible. Two more long bones other than that of the first individual could be found in this burial. The overall position of the skeletons indicate the burial belonging to one individual with nearly 80% of bones as mentioned above, with the remaining fragmentary skeletal remains, that might have intruded at some point of time, and not seems to be an intentional interment. This may be explained due to the fact that the

burial pottery assemble does not correspond to two individuals, had it been a double burial.



Fig. 5.188: Details of Burial 44, Sanauli

The burial pottery assemblage is placed at the northwestern portion of the burial and consists of three jars and a small bowl.

5.5.3.45 Burial 45

This burial feature belongs to Category E and is located in the northwestern portion of trench YA4 at 229.47 m above MSL. The feature is represented by only a cluster of burial pottery consisting of four jars, with the upper portion missing along with the rims.

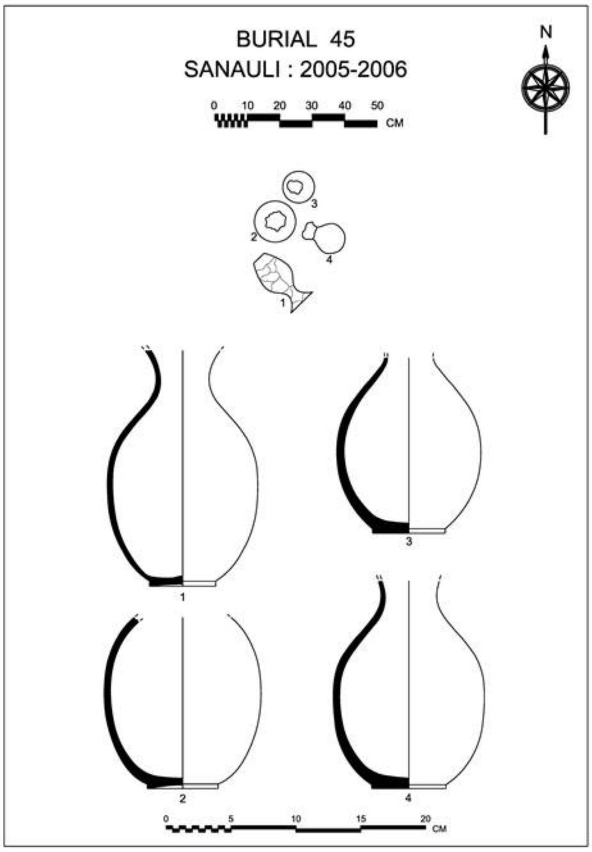


Fig. 5.189: Burial feature 45 and pottery forms, Sanauli

5.5.3.46 Burial 46

The feature termed as Burial 46 belongs to Category E and is located in the southwestern portion of YB1 at 228.5 m above MSL. The burial feature actually named as Burial 46 could have formed part of Burial 19.

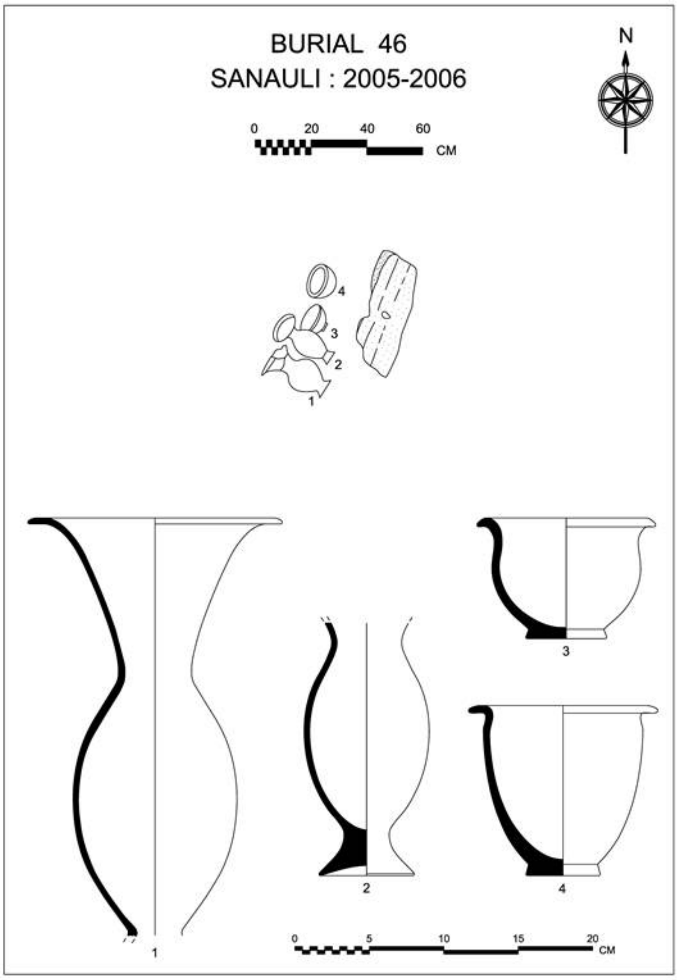


Fig. 5.190: Details of Burial feature 46 and associated pottery forms, Sanauli

However, it is also pointed out that this feature lies at a depth of 66 cm than that of Burial 19. The feature is represented only by pottery vessels consisting of two jars, one shallow and one deep bowl.

5.5.3.47 Burial 47

This burial feature belongs to the Category E and is located in mid-western portion of YA4 at 229.37 m above MSL. The feature consists only of burial pottery. The burial pottery consists of two jars and one bowl. Both the jars have their upper part missing above the neck, while the bowl is complete. One of the jars shows evidence of manufacture using coiling technique as witnessed from its interior portion.

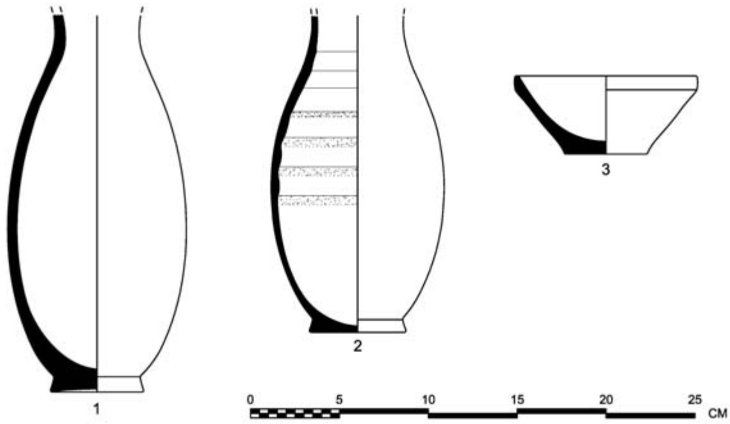


Fig. 5.191: Pottery forms associated with Burial 47, Sanauli

5.5.3.48 Burial 48

This burial belongs to Category D and is located in the mid-western portion of YA4 at 229.45 m above MSL. This is a highly disturbed burial feature and consists of only fragmentary bones, pieces of four longer bones, probably of forearms and a portion of a skull belonging to a child. The age of the child is estimated to around 2 years. Even though it is a fragmentary and disturbed burial, the ornaments found from this are rich. The ornaments consist of two copper bangles, one in each arm and agate beads.

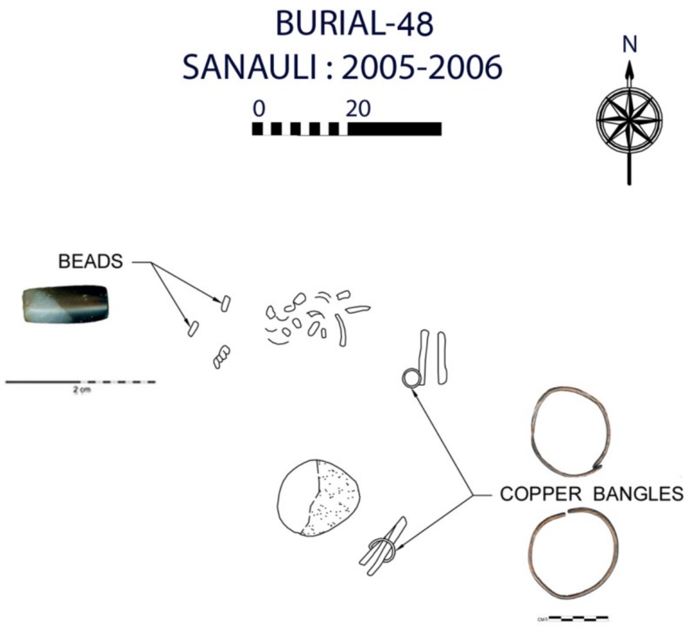


Fig. 5.192: Burial 48, Sanauli

5.5.3.49 Burial 49

This burial belongs to Category B and is located in the southeastern portion of trench YA4 at 229.35 m above MSL. This is an extended inhumation burial with the skeleton found in supine condition. The individual interred is that of a male. The burial is oriented in a northwest – southeast direction at a 48.47^0 offset to the left of

true North. The burial is disturbed to a certain extent and the left upper portion of the skeleton is damaged due to this. The left and right ribs, shoulder portion and lower forearm are missing. The skeleton is laid flat and extends straight with the hands placed along the body. The palm of both the hands is placed over the respective pelvis portion and the fingers touching the upper part of the femur. The legs are also placed straight with the toes of left leg placed over the right leg. The skull is facing the west direction.



Fig. 5.193: Burial 49, Sanauli

The excavator associates this skeleton with the finding of unidentified animal bones found just to the northwest of left shoulder. The fragmentary animal bones are found to the left of the skull and near the left shoulder. The proper identification of these animal bones with some kind of ritual is not clearly understood.

5.5.3.50 Burial 50

The burial feature is of Category D and is located in mid-eastern portion of the trench YA4 at 229.08 m above MSL. This is a highly disturbed feature and do not belong to any *in situ* burial. Numerous fragmentary human bones, like mandible, ribs, one or long bones, and other pieces and fragments, are identified from the feature. The arrangement and position of these fragmentary bones indicate that they might belong to one or more burials and due to some disturbances; they were removed and dumped here.



Fig. 5.194: Disturbed nature of bones, Burial feature 50, Sanauli

5.5.3.51 Burial 51

The burial is of Category B and is located in the balk between the trenches YD4 and YC4 at 228.51 m above MSL. The burial is a primary one but disturbed and the upper part of the body is disturbed largely. The portion below the pelvis is preserved fairly, with the right leg in its original position, while the left leg is disturbed and moved from its original place. The burial is an example of extended inhumation type and probably it was in a supine position.

The evidence also indicates its orientation as northwest – southeast direction with a 56.5^0 offset to the left of true North. A portion of the pelvic bone is lying to the northwest of the femurs along with fragmentary bones of spine. The exact cause of the disappearance and disturbance of this burial could not be ascertained as there is no indication of later period burials disturbing it. The right toe bones are preserved while that of left leg is missing.

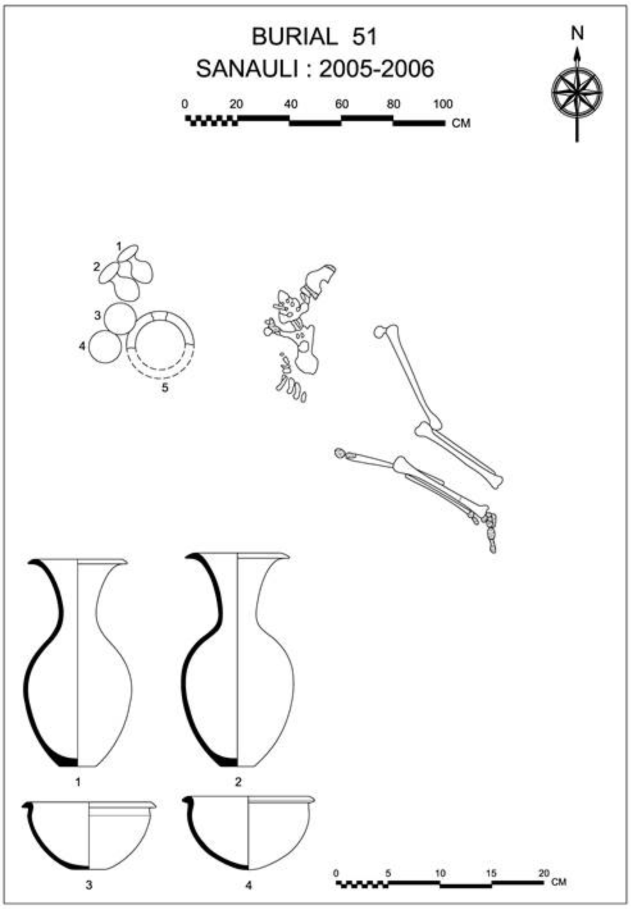


Fig. 5.195: Details of Burial 51 and associated burial pottery forms, Sanauli

The lower extent of this burial also superimposes the burial 70, whose upper portion is completely missing along with the burial pottery. This may indicate that while digging of the grave pit of Burial 51, the Burial 70 was disturbed.





Fig. 5. 197



Fig. 5.196: Burial 51, Sanauli

Fig. 5.197 & 5.198: Pottery remains, Burial 51

The burial furniture in the form of pottery vessels is lying at the northwestern portion of the burial. The burial pottery consists of two jars, two bowls and one bowl-on-stand.

5.5.3.52 Burial 52

The burial feature named as Burial 52 belongs to the Category D and is located in the northeastern corner of the trench YE3 at 229 m above MSL. This feature is located very close to the surface and consists only of fragmentary bones, probably of some animals.

5.5.3.53 Burial 53

The burial feature named as Burial 53 belongs to the Category D and is located in the southeastern corner of the trench YE3 at 228.78 m above MSL. This feature is a highly disturbed one and consists of fragmentary human and animal bones along with pieces of pottery. The fragmentary human bones are also not making any orientation or burial like feature.

5.5.3.54 Burial 54

This burial belongs to Category B and is located in the southwestern portion of trench YA4 at 229.01 m above MSL. This is primary burial, but the skeletal remains are found in a disturbed condition and hence put under Category B. This is an example of extended inhumation type and probably it was in supine position.



Fig. 5.199: Burial 54, Sanauli

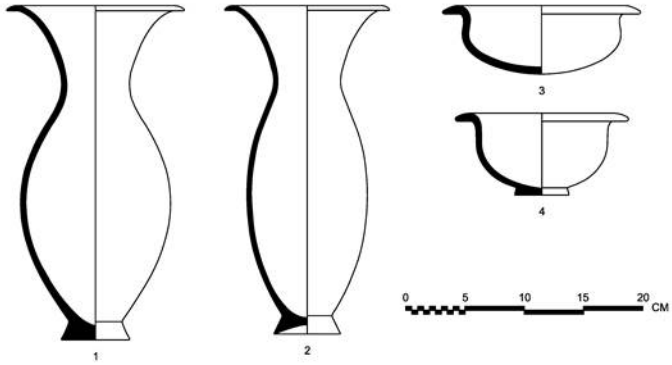


Fig. 5.200: Pottery forms associated with Burial 54, Sanauli

The arrangement of the longer bones and burial pottery at the northwestern corner of the burial indicates its alignment as northwest – southeast with a 57.71^0 offset to the left of true North. The skeletal remains consist of three long bones, probably of two femurs and one tibia, and many fragmentary bones, including parts of mandible. The burial furniture consists of pottery vessels found at the northwestern part of the burial. The pottery consists of two jars and two bowls.

5.5.3.55 Burial 55

This burial belongs to the Category B and is located in the mid-northern portion of trench XA1 at 229.15 m above MSL, which is in close proximity to the surface. The burial was found at a depth of 18 cm below reference peg. This is a primary burial but found in a disturbed condition. The alignment and arrangement of skeletal remains indicate its orientation as northwest – southeast at a 58.1^0 offset to the left of true North. The skeletal remains consist of only portions of lower body like femur and tibia, while the upper portion is missing largely. The toe portion of both the legs is missing completely. Only fragmentary bones of ribs and smaller bones represent the upper portion.

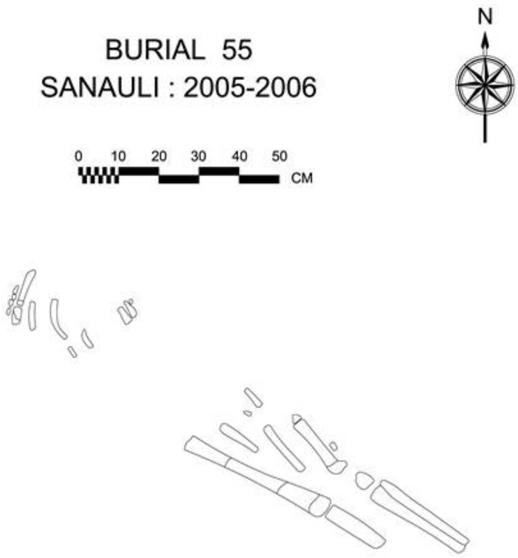


Fig. 5.201: Burial 55, Sanauli

5.5.3.56 Burial 56

This burial feature belongs to the Category E and is located in the northeastern portion of trench YD3 at 227.15 m above MSL at a depth of 2.4 m below reference peg. The burial feature consists only of an arrangement of burial pottery kept in a row in a northeast – southwest direction consisting of nine jars and a small jar. However, on scrutiny it appears that this feature forms part of Burial 66. The intermediate portion between these features is disturbed and had been given separate burial numbers.

5.5.3.57 Burial 57

This burial belongs to the Category B and is located in the southwestern portion of trench XA1 at 229.13 m above MSL and at a depth of 20 cm below the reference peg. This is a primary burial with little disturbance caused to skeletal remains. This is an extended inhumation burial with the skeleton kept in supine position. The individual interred is a male. An interesting feature of this burial is that the upper part of the skeleton, i.e. above the pelvis is slightly tilted horizontally towards the eastern direction.



Fig. 5.202: Burial 57, Sanauli

In the absence of the complete skull, it is also difficult to presume the direction in which the face is tilted. The burial is oriented in a northwest – southeast direction with a 62.27^0 offset to the left of true North if the portion of pelvis and below it is taken into account. However, if the upper body is taken into account, still the orientation is northwest – southeast but the offset is 43.16^0 to the left of true North. The exact purpose of interment of the body with such a deflection of upper body is not understood in the absence of any burial pottery.

The skeletal remain is more or less complete, with a little damage to the skull, wherein the upper portion of face is completely missing, may be due to its proximity to the surface. The other damaged portions of the skeleton include the lower right forearm, completely missing left fingers, right toe fingers. The hands are placed straight along the side of the body, and two fingers are resting on the right portion of pelvis. The legs are also placed straight and the position of the left toe fingers indicate that they were resting on the toes of right leg. This burial is devoid of any burial pottery.

5.5.3.58 Burial 58

This burial belongs to the Category B and located in the northwestern portion of trench XA1 at 229.15 m above MSL and at a depth of 20 cm below the reference peg. The arrangement of the longer bones indicates its original characteristics of a primary extended inhumation burial. The burial is represented by only two long bones, and remaining are fragmentary ones.

A major portion of the skeleton is missing like those of pelvis, ribs, skull, forearms, etc. The longer bones are found in an alignment indicating an orientation of northwest – southeast with a 54.46^0 offset to the left of true North. A small sized jar was also found near the southeastern part of the burial. However, it may be pointed here that similar types of jar are generally found near the northwestern portion of the burial near the head, and here the position if different from other cases.

5.5.3.59 Burial 59

This burial belongs to the Category B and is located in the mid-northern portion of trench XA1 at 228.96 m above MSL and at a depth of 35 cm below the reference peg. This is a primary burial but disturbed and the upper portion from the middle portion of both the femurs are missing completely. The longer bones of the legs are kept extended and straight with the portion below the knees turned towards the left. The alignment indicates a northwest – southeast orientation at a 47.64^0

offset to the left of true North. No further evidence of the presence of any burial furniture could be found from this burial.



Fig. 5.203: Skeletal remains of Burial 59, Sanauli

5.5.3.60 Burial 60

This burial is of the Category B and is located in the middle of balk between the trenches XB1 and YB1 at 229.97 m above MSL and at a depth of 41 cm below the surface. This is a primary burial but disturbed largely and only the leg bones are preserved along with the portions of skull, mandible and rib fragments. The individual interred is that of a male. The longer bones of the leg are placed in an alignment and extended straight which indicates its position *in situ* condition. The orientation as indicated by the longer bones is in northwest – southeast direction with a 52.32^0 offset to the left of true North.

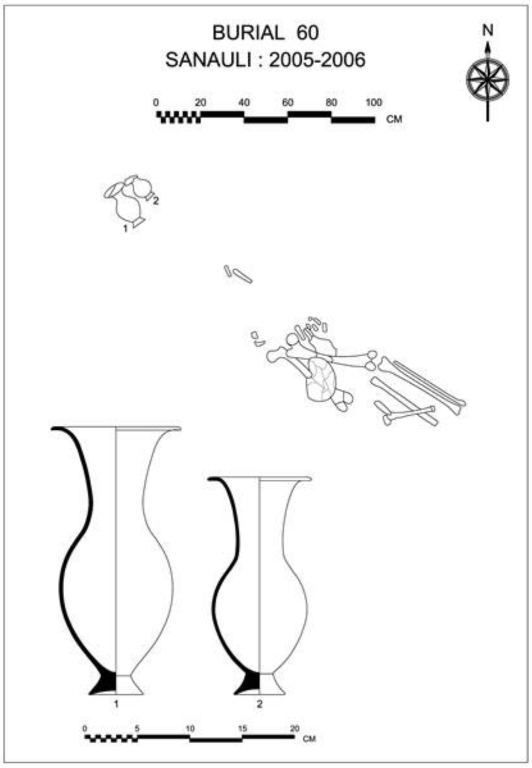


Fig. 5.204: Burial 60 and pottery forms, Sanauli

This burial is associated with pottery vessels placed at the northwestern portion. It consists of two jars with a conical base and red slip.

5.5.3.61 Burial 61

Burial 61 is of the Category B and is located in the mid-northern portion of trench XB1 at 228.87 m above MSL and at a depth of 41 cm below the reference peg. This is a primary burial of the extended inhumation type and the position of skeleton indicates its supine condition. However, the skeletal remains from below the skull are completely missing except the upper part of humerus and one long bone of leg. The skull and upper forearm bones are in a raised position, similar to that of Burial 24. If similarity of interment could be drawn, it can be presumed that this burial was also fitted inside a smaller burial pit. The individual interred is a female.



Fig. 5.205: Burial 61, Sanauli

5.5.3.62 Burial 62

This burial feature belongs to the Category E and is located in the mid-northern portion of trench XB1 at 228.78 m above MSL and 44 cm below the reference peg. This burial feature is an isolated group of pottery vessels only and not associated with any skeletal remains. The pottery assemblage consists of a jar, a rim portion of jar and a broken bowl. The absence of any skeletal remains in association with the pottery vessels indicates the disturbed nature of the burial feature.

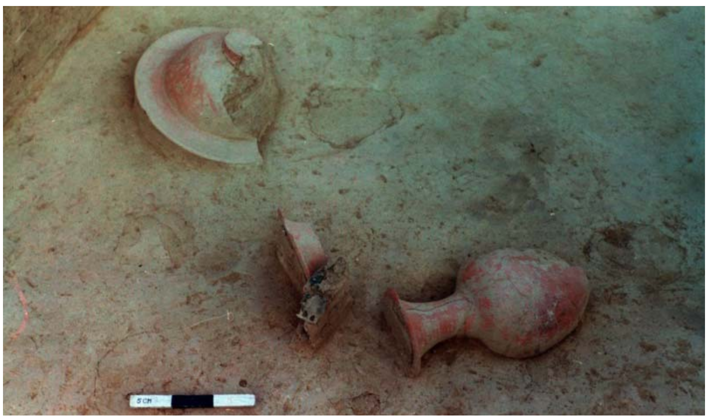


Fig. 5.206: Pottery of Burial 62, Sanauli

5.5.3.63 Burial 63

This burial is of the Category B and is located in the southeastern portion of the trench YC1 at 228.4 m above MSL and at a depth of 50 cm below the reference peg. The feature is a primary burial but disturbed and the skeletal remains are found in a topsy-turvy condition. The alignment of the skeletal remains along with the pottery goods kept at the northwestern portion of the burial indicate a northwest – southeast orientation with a 56.07^0 offset to the left of true North.

The skeletal remains consist of fragmentary remains of mandible, one or two long bones, etc. The burial pottery is found both at the northwestern part of the burial as well as at the central portion.

The pottery placed at the northwestern portion consists of two bowls, a small *lota* shaped jar and a jar, while at the central portion a complete dish-on-stand of the typical drooping rim variety was found. The base of the dish-on-stand resembles the drooping character of dish portion, albeit in an opposite direction and projecting upwards.

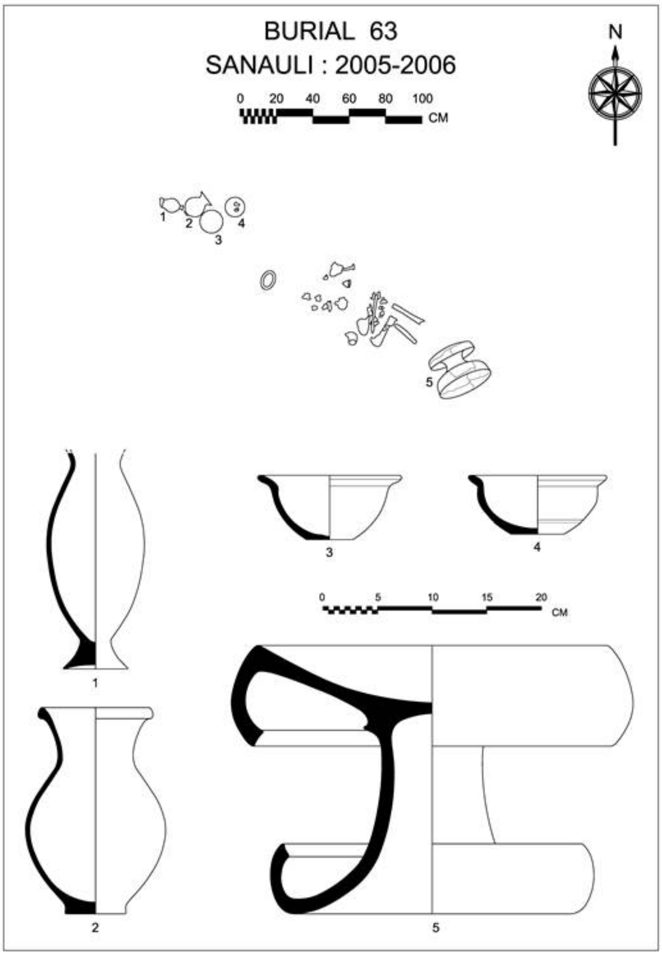


Fig. 5.207: Burial 63 and associated pottery forms, Sanauli

5.5.3.64 Burial 64

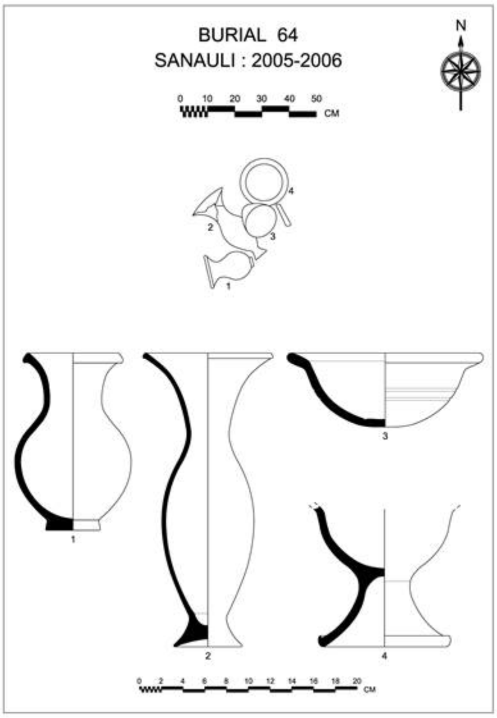


Fig. 5.208: Burial feature 64 and associated pottery forms, Sanauli

The burial feature named as Burial 64 belongs to the Category E and is located in the mid-eastern portion of trench YC1 at 228.45 m above MSL and at a depth of 68 cm below reference peg. The feature consists of an isolated occurrence of pottery vessels. The pottery group consists of a jar, a *lota* shaped jar, a bowl and a bowl-on-stand.



Fig. 5.209: Pottery remains, Burial 64, Sanauli

5.5.3.65 Burial 65

The burial feature named as Burial 65 belongs to Category E and is located in the mid-western portion of trench YC3 at 229.16 m above MSL and at a depth of 30 cm below the reference peg.

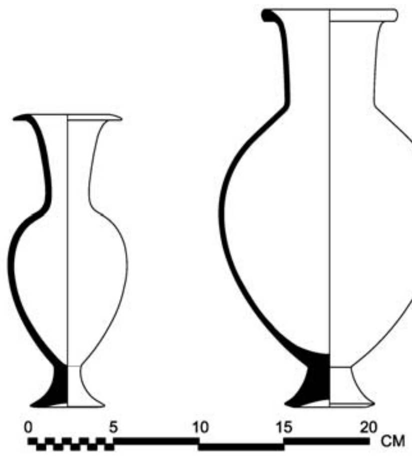


Fig. 5.210: Pottery forms found from Burial 65, Sanauli

This feature is an isolated occurrence of a few pottery vessels not associated with any skeletal feature. The pottery group consists of two jars, one of medium size and other smaller with a conical base. The remains of two fragmentary bones are also found along with the pottery remains.

5.5.3.66 Burial 66

The burial feature named as Burial 66 belongs to Category B and is located in the northeastern portion of the trench YD3 at 227.34 m above MSL and at a depth of 2.4 m below the reference peg. The feature once formed part of a primary burial, but the exact inhumation nature could not ascertained. Even though the group of a large earthen trough, a lid, a large jar and a dish-on-stand, placed in a row has been given a separate burial number, this feature can be associated with the Burial 56, which has been explained under 5.5.3.56 above. Both these features actually constitute an important burial at Sanauli. The major portion of the skeletal remains have been damaged and disappeared except the remains of a skull, a femur and a fragmentary mandible. If both the burial features are taken into account as a single burial, as even indicated by the clear pit line, the orientation is northwest – southeast direction with a 43.49^0 offset to the left of true North.

The central portion of the burial is a big void without any skeletal remains and the burial furniture found at the northwestern portion and along the left side of the burial are the two most distinct features along with the presence of a human skull, found by the side of big jar. On the top of the forehead, was placed a gold object, which was close to the star-shaped and may have represented a stylised human figure. On removal of the earthenware was exposed a fragment of the curved copper object (a strip), which appears to be similar to the copper container of Burial

28 as discussed above. In this case, however, from inside the curved copper strip, were found 6 star-shaped copper objects, which were probably set in a piece of wood. The details of the gold object is discussed in 5.5.4.2.

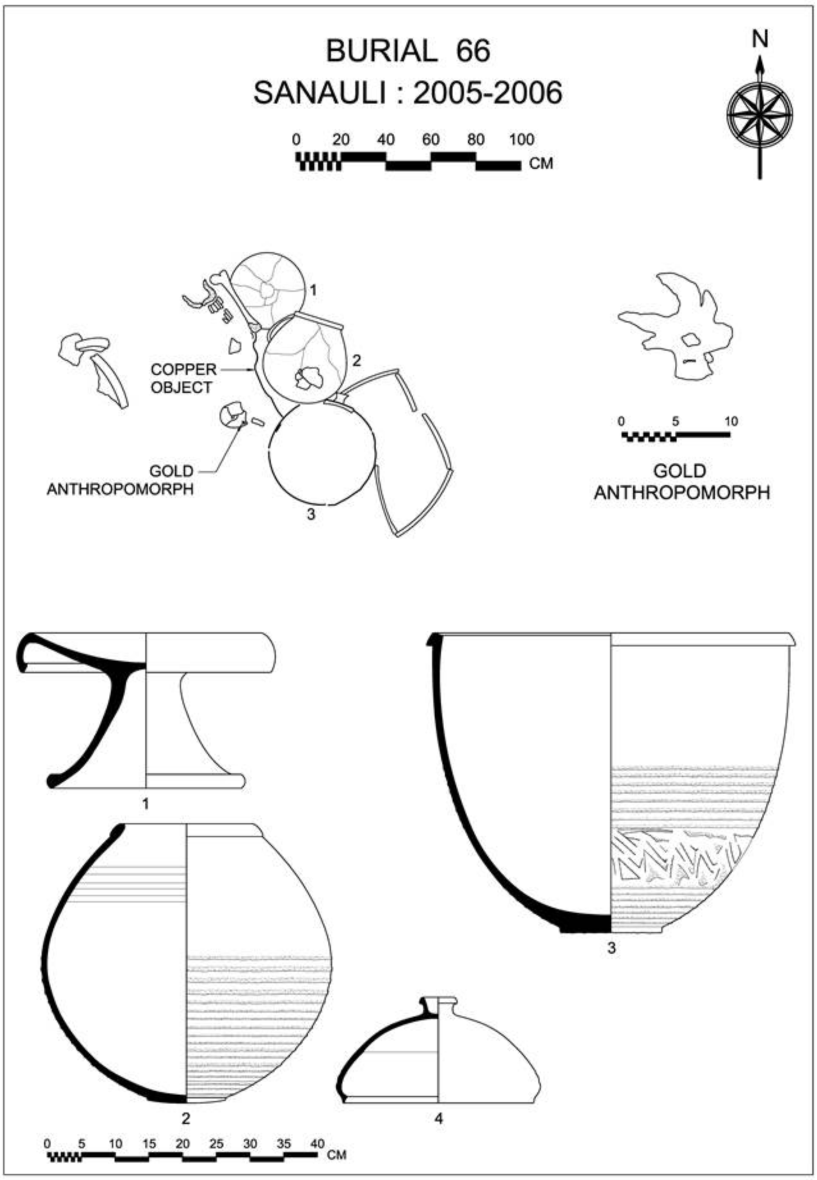


Fig. 5.211: Pottery forms associated with Burial 66 and details of stylised gold anthropomorph, Burial 66, Sanauli

The pottery goods placed at the northwestern portion of the burial consist of nine jars, all kept in a row, and in northeast – southwest orientation. The other pottery group is found along the left side of the burial and below the central portion. The contents of this pottery group are described above. The large trough and jar have decorations on the exterior, consisting of horizontal bands of rustications. The globular jar could be fitted with a lid found from the same levels. The pottery form indicates its similarity to late Harappan burial pottery found from Harappa.

5.5.3.67 Burial 67



Fig. 5.212: Burial 67, Sanauli

This burial belongs to the Category A and is located in the southwestern portion of YC3 at 228.95 m above MSL and at a depth of 56 cm below the reference peg. This is a primary burial of the extended inhumation type and the skeletal remains are placed in supine position. This burial belongs to a child and the orientation is in northwest – southeast direction with a 46.91^0 offset to the left of true North. The age of the child is estimated to 1 – 2 years. The skeletal remains are in a fragile and fragmentary condition due to the soft nature of bones of a child. The leg bones below the knee are missing along with the fingers of both the hands. The ribs are also in a fragmentary condition. The skull is crumbled, may be due to the soft nature of the bones as well as the load of earth put above the burial. The same is the case with the pelvic bones, which are also found in a broken and crumbled condition.

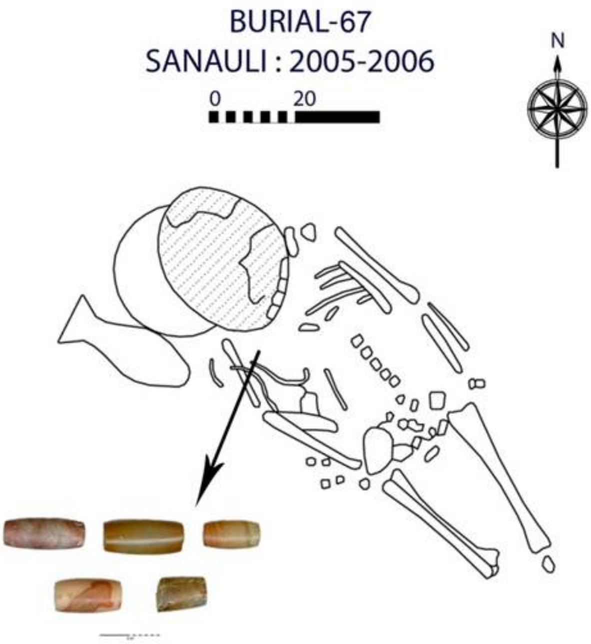


Fig. 5.213: Burial 67, Sanauli

The burial is associated with pottery goods like a jar and a wide mouthed bowl, the latter kept directly underneath the skull.

5.5.3.68 Burial 68

The burial feature named as Burial 68 belongs to the Category E and is located in the western portion of the trench YC3 at 228.98 m above MSL and at a depth of 50 cm below the reference beg. This burial feature consists only of an isolated group of pottery vessels comprising of two jars and two bowls. Both the jars have been found with the rim portions missing. The basal portion of one of the bowls is missing, while the other bowl has a large stud base.

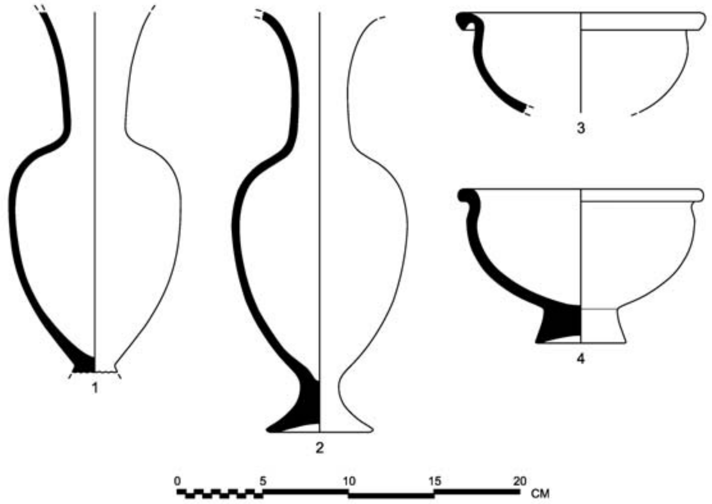


Fig. 5.214: Pottery forms from Burial 68, Sanauli

5.5.3.69 Burial 69

The burial belongs to Category B and is located at the southeast corner of the trench YD4 at 228.59 m above MSL and at a depth of 0.88 – 1.2 m below the reference peg. This burial is a primary extended inhumation burial and has been described by the excavator as a triple burial (Burial 69). This burial has revealed three human skeletons, placed side-by-side. The sex of two individuals could be determined, one belonging to a male and other of a female. The most complete one is preserved from the pelvic bone and down below reveals a northwest to southeast orientation with a 47.57^0 offset to the left of true north. The nearly complete specimen of human skeleton also indicates that it is a primary extended inhumation burial, while the skeletal remains belonging to other two individuals are not placed in an extended inhumation type. The burial furniture comprised 21 pottery vessels – 10 vases, 2 medium-sized jars (pitchers), each covered with a bull-headed lid, 3 dishes-

on stand, and 6 bowls, including 2 bowls-on-stands - all placed near the heads. The dishes-on-stand were placed in a row parallel to the length of the skeletons, but lower down the hip. One of these, however, was found placed just below the hip, while remaining two were closer to the feet.

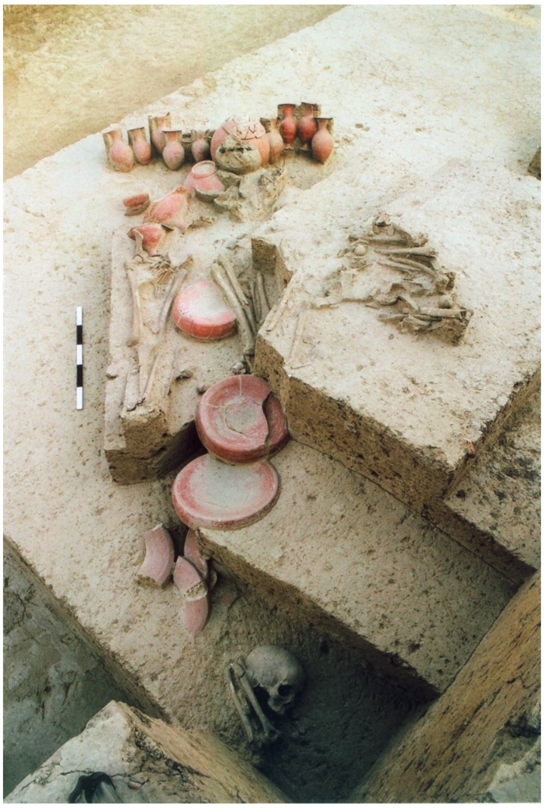


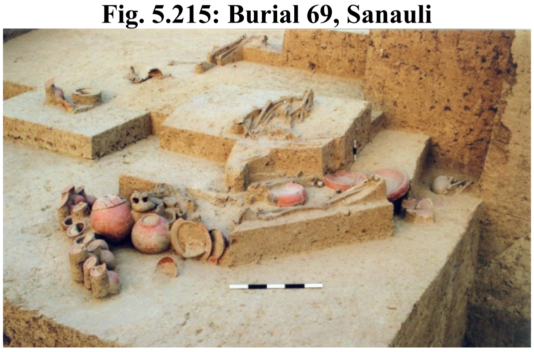


Fig. 5.216: Burial 69, Sanauli



Fig. 5.215: Burial 69, Sanauli

Fig. 5.217: Burial 69, Sanauli



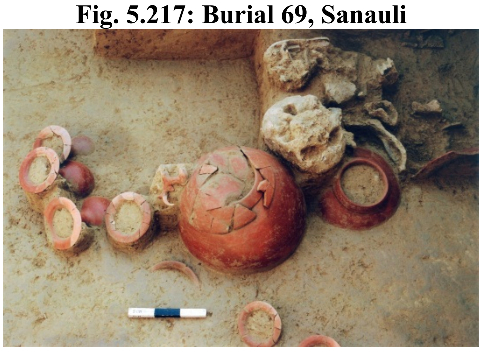


Fig. 5.218: Burial 69, Sanauli

Fig. 5.219: Burial 69, Sanauli

There are two important aspects in respect of pottery assemblage from this burial. One, the animal-headed lids of the two jars mentioned above depict bull figurines, which resemble mature Harappan prototypes. As far as the change or evolution of pottery traditions is concerned, in respect of dish-on-stand and pedestalled bowls, this burial contains pottery of all varieties, viz., jars having contiguous base, flat based ones and with distinct non-contiguous internal hollow triangular bases.

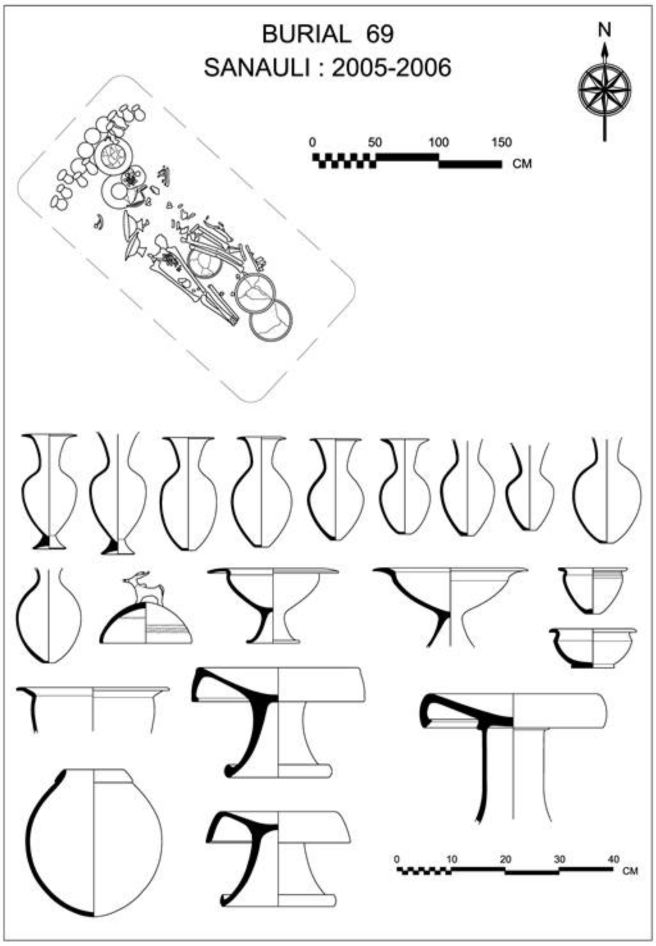


Fig. 5.220: Burial 69 and associated pottery forms, Sanauli

This burial, it may be significant to note, had one skull placed upside down. Further, the phalanges were found heaped close to the place where shoulder of the dead would have been placed in normal position of an extended burial. Disposal of three skeletons in a single grave is a peculiar example of the burial practices in ancient India, so far unreported from any other excavation, except the megaliths of the Iron Age. Again, absence of two human skulls from the grave, which in normal course of things should have been found there, is indicative of some unusual circumstances in which the three closely related persons had died.



Fig. 5.221: Burial 69, Sanauli



Fig. 5.222: Burial 69, Sanauli

As a general practice, the pottery has been found placed on the north, near the head. Invariably, the vessels of different shapes and sizes, were arranged in odd numbers, namely 3, 5, 7, 9, 11, and so on. The maximum number counted was 21 as noted in the case of this triple burial. The main pottery types placed in this grave include bowls (deep and shallow), jars of different sizes with button or flat based, and big jars of different sizes. As a rule, at least one dish-on-stand has been found placed in one grave, with or without skeleton.

5.5.3.70 Burial 70

This burial belongs to Category B and is located in the southwestern part of the trench YC4 at 229.12 m above MSL and 32 cm below the reference peg. This burial is a primary one but disturbed largely and only the portion below the pelvis has been found. The femur bones are also not preserved and the leg just below the knee portion is found. The arrangement of the lower leg bones indicate its extended inhumation type and from this the orientation can be determined as northwest – southeast orientation at a 33.56^0 offset to the left of true North. While the lower right leg is in its original position, the lower left leg in slightly displaced horizontally towards the northeastern direction. The evidence indicates that the left toe is placed over the right toe.

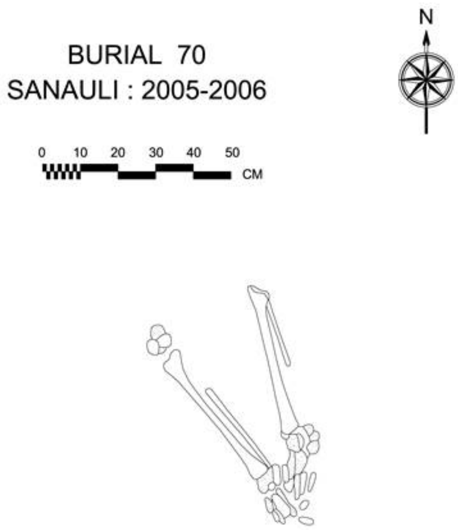


Fig. 5.223: Burial 70, Sanauli

5.5.3.71 Burial 71

This burial belongs to the Category D and is located in the mid-southern portion of the trench YD4 at 229.05 m above MSL and 40 cm below the reference

peg. The burial is highly disturbed with the bones found in a topsy-turvy condition. The burial belongs to a sub-adult aged around ten years. Only one femur seems to be in the original condition along with the skull, which is less disturbed. All the remaining bones are disturbed and scattered here and there. Much of the longer bones, portions of pelvis, ribs, etc., are missing. The arrangement of the skull and the femur bone indicate the orientation of the burial as northwest – southeast direction at a 52.85^0 offset to the left of true North. This burial is not associated with any grave goods.

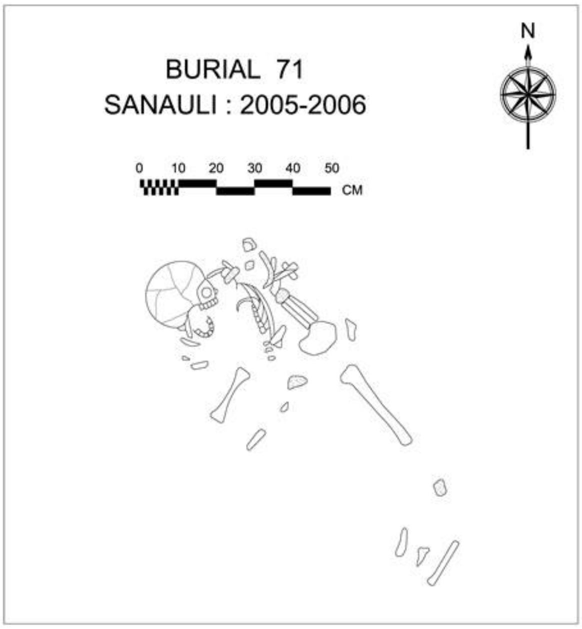


Fig. 5.224: Burial 71, Sanauli

5.5.3.72 Burial 72

The burial is of the Category B and is located in the central portion of the trench YC1 at 229.91 m above MSL and 34 cm below the reference peg. This burial is a primary one, but disturbed largely. This belongs to the extended inhumation type and preserved below the pelvis region only. Thus, the longer bones of the leg along with fragmentary bones are preserved. The longer bones indicate its orientation as northwest – southeast direction with a 62.7^0 offset to the left of true North. This burial also disturbs a large rectangular terracotta trough; its original function is yet to be determined. The digging of the burial pit for this burial made a cut across the eastern arm of the terracotta trough. As the upper portion of the skeleton is completely missing, no burial goods are found.

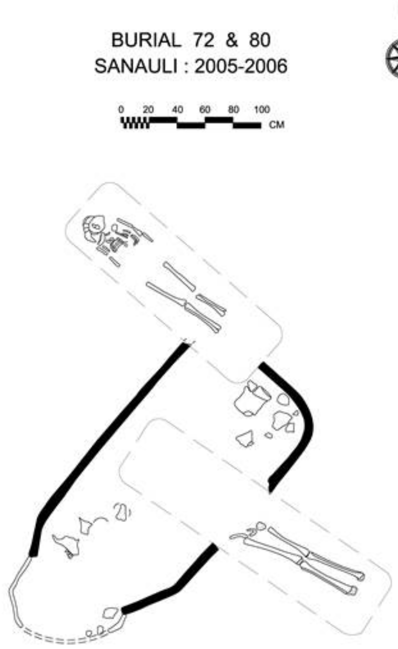


Fig. 5.225: Burials 72 (lower) and 80 (upper), Sanauli

5.5.3.73 Burial 73

The burial is of Category B and is located in the central portion of trench YC3 at 228.43 m above MSL and at a depth of 1.05 m below the reference peg. This is a primary burial, but disturbed largely and only the left femur, knee portion, upper part of tibia, part of right femur, knee, tibia, and toe bones are preserved.

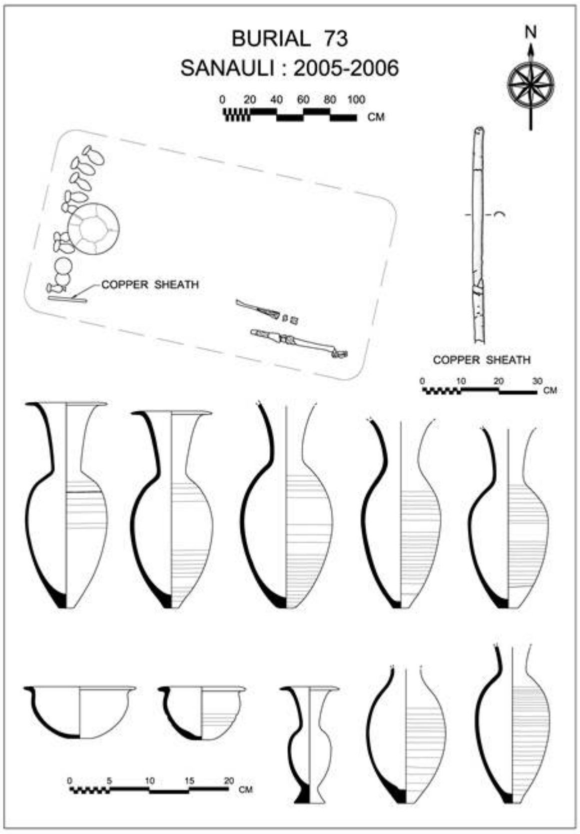


Fig. 5.226: Burial 73, Sanauli

All the remaining bones are missing. The arrangement of existing longer bones of legs indicates its northwest – southeast orientation at a 77.35^0 offset to the left of true North. The burial furniture consists of a series of pottery vessels placed at the northwestern portion of the burial in a northeast – southwest orientation. The burial pottery consists of eight jars, two bowls and a bowl-on-stand. The arrangement of pottery indicates placing of five jars with flat base starting from the northeastern corner followed by another two jars, then two bowls and finally a smaller jar with a conical base. The jars indicate manufacture using coil technique. The bowl-on-stand is placed at the centre of the above row. Another prominent and most important item among the burial furniture is the placement of a large copper sheath at the southwestern corner of the above row of pottery. The copper sheath measures 56.3 cm in length and is semi-circular in section. This copper sheath is different from that of a similar one found from Burial 14, which two copper sheets were rolled resembling a circular cross-section.

5.5.3.74 Burial 74

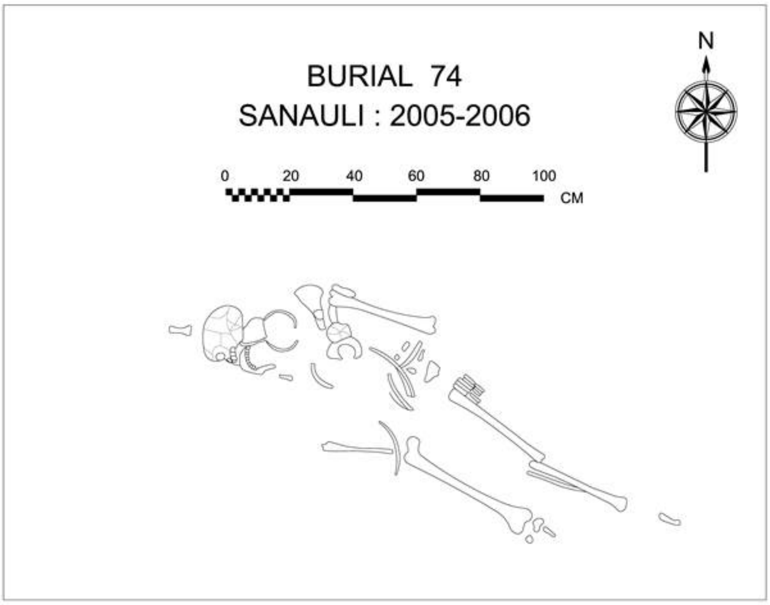


Fig. 5.227: Burial 74, Sanauli

This burial belongs to the Category B and is located in the mid-eastern portion of the trench YD2 at 228.85 m above MSL and at a depth of 47 cm below the reference peg. The evidence indicates it as a primary burial but disturbed and the portion above the longer bones of legs are found in a topsy-turvy condition. The arrangement of the longer bones indicates its original position from which the orientation can be deduced as northwest – southeast direction at a 55.24^0 offset to the left of true North. The bones like right tibia, portions of ribs, some longer bones of

forearms, etc., are missing and the skull is in a disturbed condition. It is lying turned towards the southwestern side along with the upturned mandible. This indicates disturbance to this burial in antiquity and the bones displaced here and there. The individual interred is a female.

5.5.3.75 Burial 75

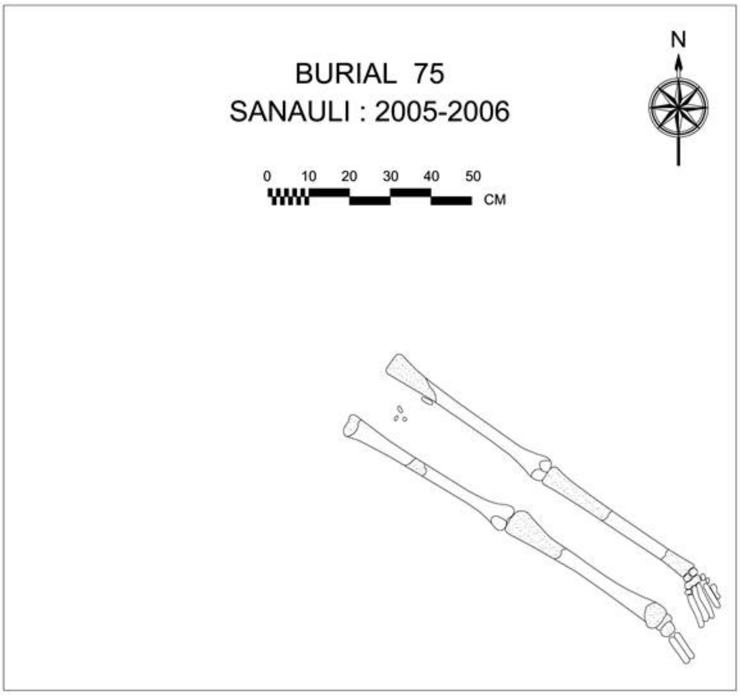


Fig. 5.228: Burial 75, Sanauli

This burial belongs to the Category B and is located in the mid-western portion of the trench in YC1 at 229 m above MSL and at a depth of 25 cm below the reference peg. This is a primary burial, but the skeletal remains are found in a disturbed condition. The portions above the upper part of femurs are totally missing. The arrangement of the longer bones of the legs indicate an *in situ* condition from which the orientation is deduced as 56.35^0 offset to the left of true North. The toe bones are turned and placed in the south direction.

5.5.3.76 Burial 76

The burial is of the Category B and is located in the northwestern portion of the trench YC1 at 228.73 m above MSL at a depth of 53 cm below the reference peg. This is also a primary burial, but disturbances were caused in the past and the skeletal remains above the upper portion of femurs are missing. Only the fragmentary remains of ribs and fingers could be found above the femur portion.

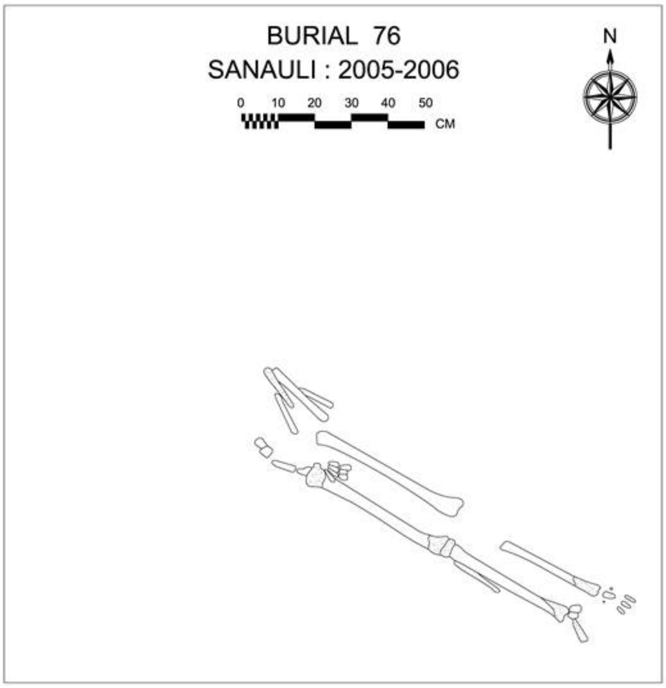


Fig. 5.229: Burial 76, Sanauli

The arrangement of the longer bones of the legs indicates its original placing and from this the orientation of the burial could be deduced, which is 60.75^0 offset to the left of true North. The fingers of the right arm is found placed on the upper part of right femur.

5.5.3.77 Burial 77

The feature named as Burial 77 is located at the northwestern portion of the trench YC2 at 228.93 m above MSL and at a depth of 58 cm below the reference peg. This feature is placed under the Category D and is only a cluster of fragmentary animal and human bones, which could not be associated with any burial feature.

5.5.3.78 Burial 78

The feature named as Burial 78 is of Category D and is located in the trench YC4 at 228.78 m above MSL and at a depth of 65 cm below the reference peg. This burial feature is only a cluster of fragmentary bones, which could not be associated with any burial.

5.5.3.79 Burial 79

This burial belongs to the Category B and is located in the central portion of trench YD3 at 228.97 m above MSL and at a depth of 45 cm below the reference peg. This burial is a primary one, but disturbed due to later disturbances and the skeletal portion above the tibia is completely missing. The arrangement of the tibia bones along with the toe bones indicates its original extended inhumation type. The

placement of the longer bones of legs also enables to determine its orientation as 59^0 offset to the left of true North. The evidence also indicates that this burial was disturbed in antiquity by another burial, 113. The digging of Burial 113 damaged the central portion of Burial 79, which resulted in the removal of skeletal remains of latter. Another burial feature named as Burial 104, which consists of arrangement of burial pottery actually belongs to Burial 79.

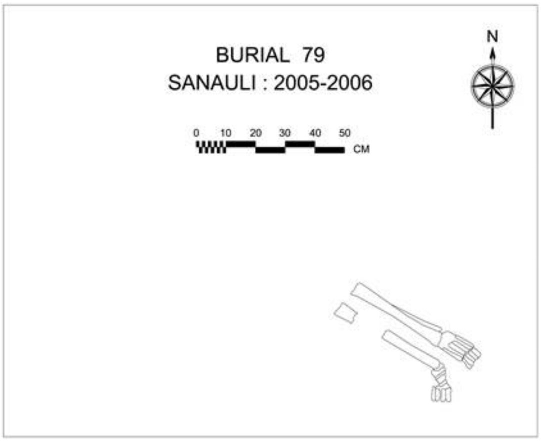


Fig. 5.230: Burial 79, Sanauli

5.5.3.80 Burial 80

This burial belongs to the Category B and is located in the central portion of YC1 at 228.55 m above MSL and at a depth of 56 cm below the reference peg. The burial is a primary one but disturbed and the bones like pelvis, toes, lower forearm, portions of ribs, etc., are missing. The arrangement of the skull, longer bones indicate its orientation as northwest – southeast direction at a 53.91^0 offset to the left of true North. This burial, along with Burial 72 as explained above, disturbed a large rectangular terracotta trough, the exact function of which is yet to be determined. The Burial 80 disturbed the trough at its northwestern portion, cutting both the right and upper arm corner.

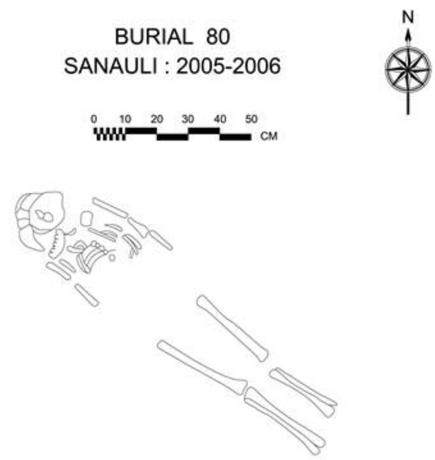


Fig. 5.231: Burial 80, Sanauli

5.5.3.81 Burial 81

The burial is of Category B and is located in the mid-northern portion of the trench YD3 at 228.83 m above MSL and at a depth of 45 cm below the reference peg. This is a primary burial, disturbed in the antiquity largely due to the digging of grave pit for the Burial 10 as mentioned above in 5.5.3.10. The skeletal remains consist of portions of femurs of legs, right tibia, portion of left tibia and toe bones. The remaining bones are missing largely due to the burial pit as mentioned above. The available longer bone of the legs indicates its northwest – southeast orientation with a 51.52^0 offset to the left of true North. As mentioned above, the feature named as Burial 105 is actually a part of Burial 81, which contains the burial goods of the latter. The burial goods consist of two vases and a bowl.

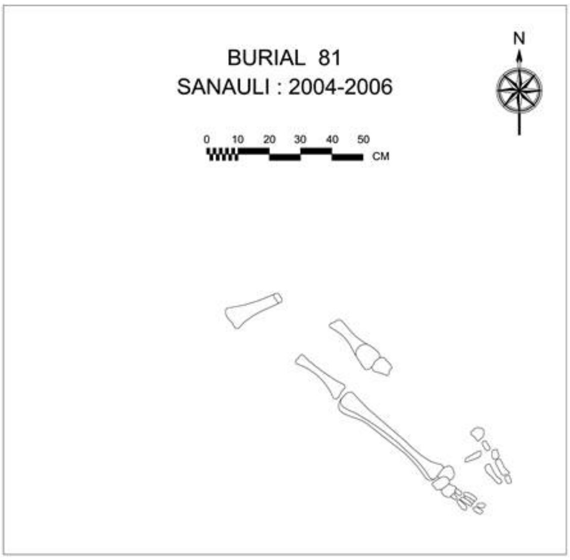


Fig. 5.232: Burial 81, Sanauli

5.5.3.82 Burial 82

This burial belongs to the Category B and is located in the trench YB1 at 228.88 m above MSL and at a depth of 33 cm below the reference peg. This is a primary burial and again disturbed. The skeletal remains consist of only the portions of longer bones of right and left leg. The arrangement of these bones indicates its northwest – southeast orientation with a 55.35^0 offset to the left of true North.

5.5.3.83 Burial 83

The feature named as Burial 83 is of the Category E and is located in the mid-western portion of the trench YC2 at 228.51 m above MSL and at a depth of 90 cm below the reference peg. Only the pottery remains, usually kept at the northwestern portion of a burial, represent the burial feature. The burial pottery consists of two vases, with the portion above neck missing.

5.5.3.84 Burial 84

The feature named as Burial 84 is of the Category D and is located in the northwestern portion of the trench YC2 at 228.48 m above MSL and at a depth of 95 cm below the reference peg. The burial feature is represented only by the remains of animal and human bones, found in a topsy-turvy condition and scattered here and there. This feature is not associated with any burial pottery.

5.5.3.85 Burial 85

The burial is of Category A and is located in the mid-northern portion of the trench YD2 at 227.83 m above MSL at a depth of 1.67 m below the reference peg. This is a primary burial of the extended inhumation type with the position of skeleton found in supine condition. The orientation of the burial is from northwest – southeast direction with a 55.97^0 offset to the left of true North. The skeletal remains below the knee portion of leg are missing.

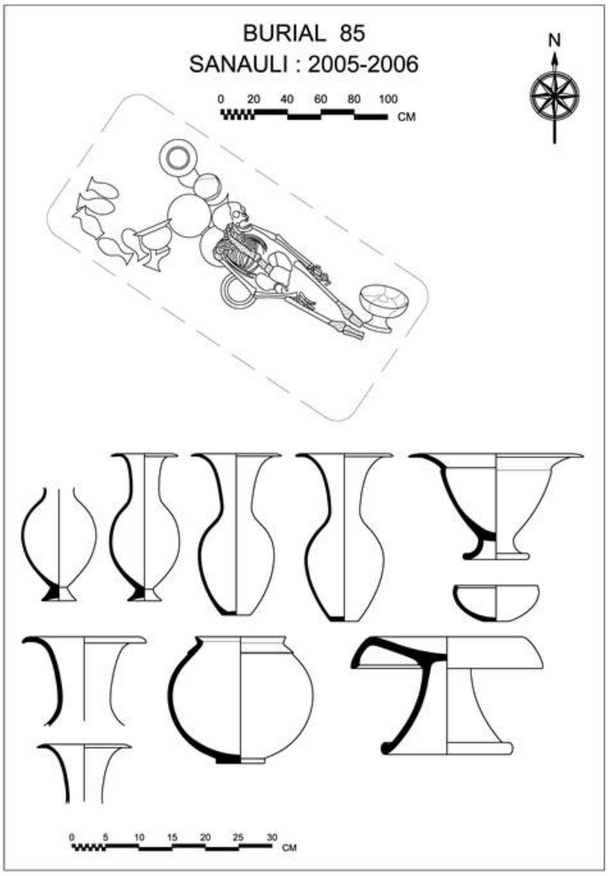


Fig. 5.233: Burial 85 and pottery forms, Sanauli

The upper part of tibia was found intact while the remaining portion not available. The position of the hands and legs are straight and extending without any flexes. The hands are placed along the body. The right hand is bent below the

elbow and the palm is resting on the right femur below the pelvis. The left hand is placed straight along the left side of the body and placed by the side of upper part of left femur outside the body alignment. The position of the skull is interesting here. It is turned towards the northeastern direction and slightly looking downwards with a gaping mouth. The burial furniture consists of pottery vessels placed near the head at the northwestern part of the burial, as well as below the shoulder, right arm and near the left leg.

The burial pottery near the head, shoulder and arm is placed at a level below that of the skeleton. This attests to the performance of certain rituals before the interment of deceased individual. The burial pottery consists of six jars, bowl-on-stand, dish-on-stand, bowls, etc.

5.5.3.86 Burial 86

This burial belongs to the Category B and is located in the mid-western part of the trench YC1 at 228.71 m above MSL and at a depth of 54 cm below the reference peg. The burial feature is represented by only two long bones and a few fragmentary bones kept in a northwest – southeast direction with a 49.2^0 offset to the left of true North.

The burial furniture consists of pottery placed at the northwestern portion of the burial. The burial pottery consists of a jar, a bowl and a lid. The lid has a prominent handle, while the jar is a tall-elongated one.

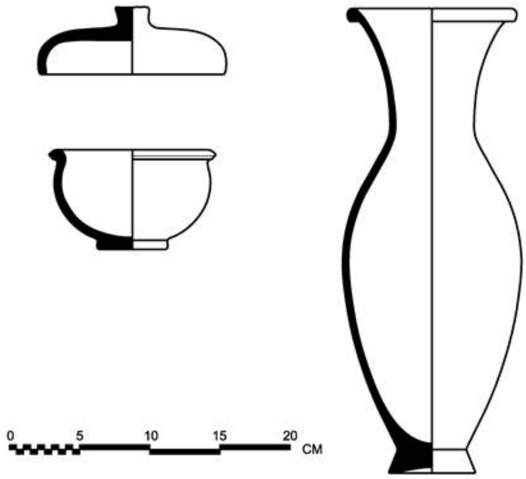


Fig. 5.234: Pottery found from Burial 86, Sanauli

5.5.3.87 Burial 87

The burial feature named as Burial 87 belongs to Category E and is located at the northwestern portion of the trench YA4 at 228.92 m above MSL and at a depth of 77 cm below the reference peg. The burial feature consists only of a row of burial

pottery. The burial pottery consists of four jars, two bigger and two smaller along with two bowls.

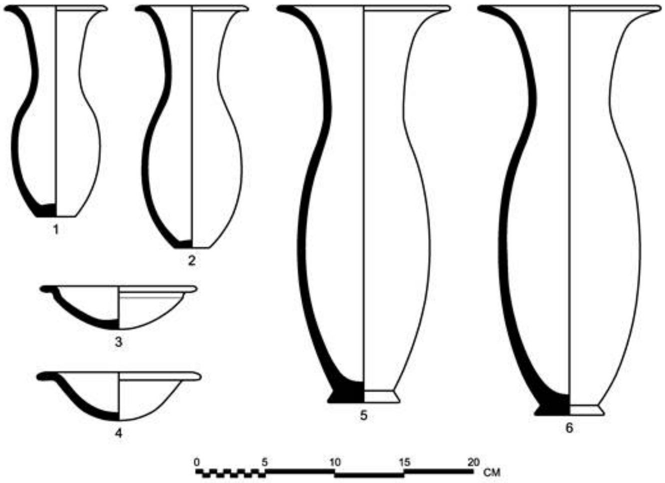


Fig. 5.235: Pottery finds from Burial 87, Sanauli

5.5.3.88 Burial 88

The burial feature named as Burial 88 belongs to Category E. This burial feature is located in the mid-eastern portion of the trench YD3 at 228.19 m above MSL and at a depth of 1 m below the reference peg. The burial feature consists only of a group of pottery vessels kept in a row roughly in a north – south direction. The burial pottery consists of six vases, a lid, two deep bowls, a large globular jar now half-broken, etc.



Fig. 5.236: Pottery remains from Burial 88, Sanauli

5.5.3.89 Burial 89

The feature named as Burial 89 belongs to the Category E. This feature is located at the northeastern corner of the trench YC1 at 228.28 m above MSL and at a depth of 83 cm below the reference peg. The burial feature consists only of a group of burial pottery. The burial pottery consists of a dish-on-stand, a small *lota* shaped grey jar placed on a large storage jar, a jar and a large shallow bowl. The dish-on-

stand belongs to the typical drooping rim and the lower portion of stem is painted with four horizontal bands, the lower two intervened by a wavy band. The dish-on-stand also attains a tall and slender form unlike other ones found from Burial 1, which are sturdy and squattish. The grey *lota* shaped jar has a typical decoration similar to those found on a grey dish-on-stand from the explorations.

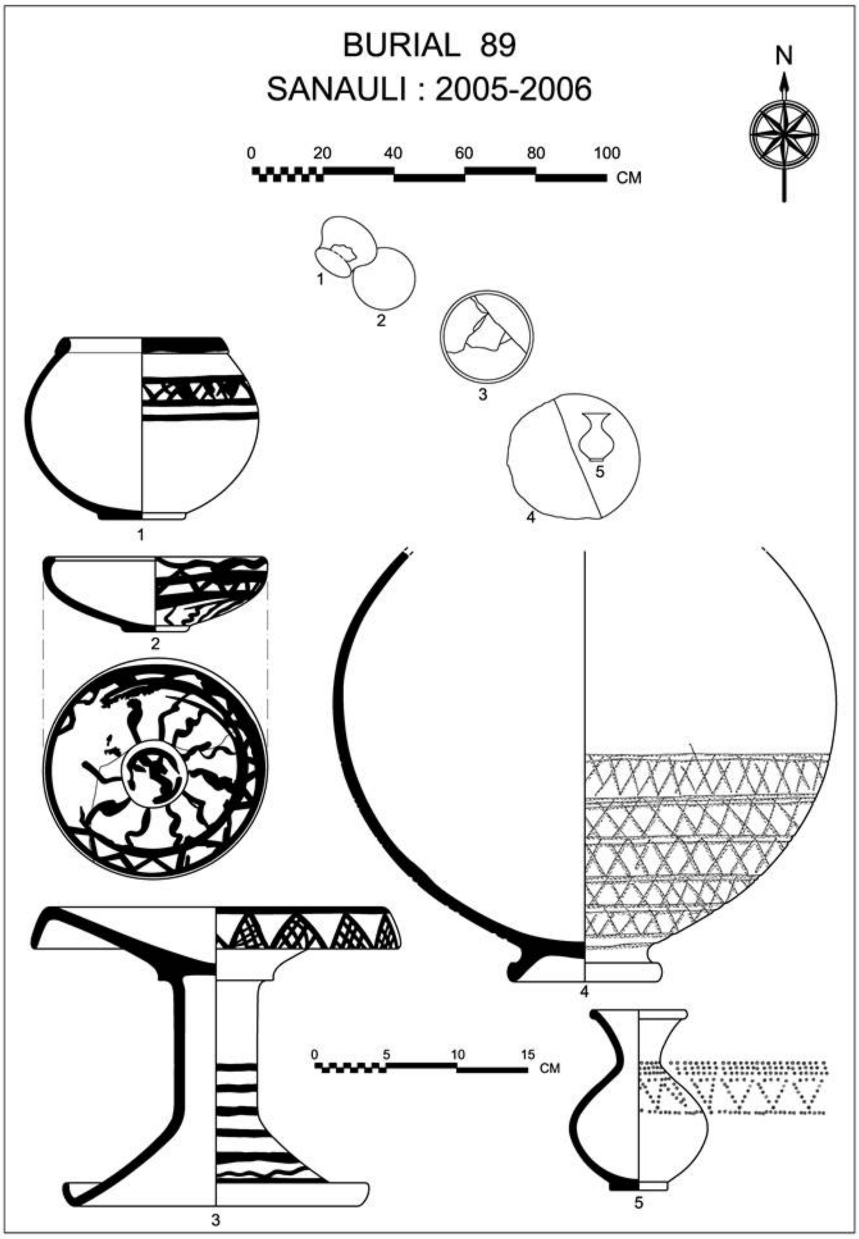


Fig. 5.237: Pottery forms found from Burial 89, Sanauli

The decoration consists of three rows followed by a band of inverted triangle and a single row. The decorations are made of circular depressions on wet clay, which were later filled with white paste. The lower portion of the large storage jar is decorated with incised decorative patterns consisting of two horizontal bands bordering cross-hatchings. The dish-on-stand and the bowl are richly decorated in

the form of black coloured paintings over the red slipped surface. The decorative pattern on the lip portion of dish consists of inverted triangles filled with hatches. The central and lower portion of the stem contains horizontal bands. The bowl has decorative patterns on its outside portion, which consists of a central circular pattern on the bottom of disc base, and rays emanating from it and ending along the two horizontal bands executed near the rim. The vase has also black coloured decorative patterns on its exterior, which consists of four horizontal bands, the first one starting along the rim. The central two bands are filled with irregular cross-hatches, not executed in a regular pattern and hence overlapping occurs on several hatches.

5.5.3.90 Burial 90

This burial is of the Category B and is located at the mid-southern portion of the trench YC4 at 228.67 m above MSL at a depth of 1.03 m below the reference peg. This is a primary burial, but a highly disturbed one.

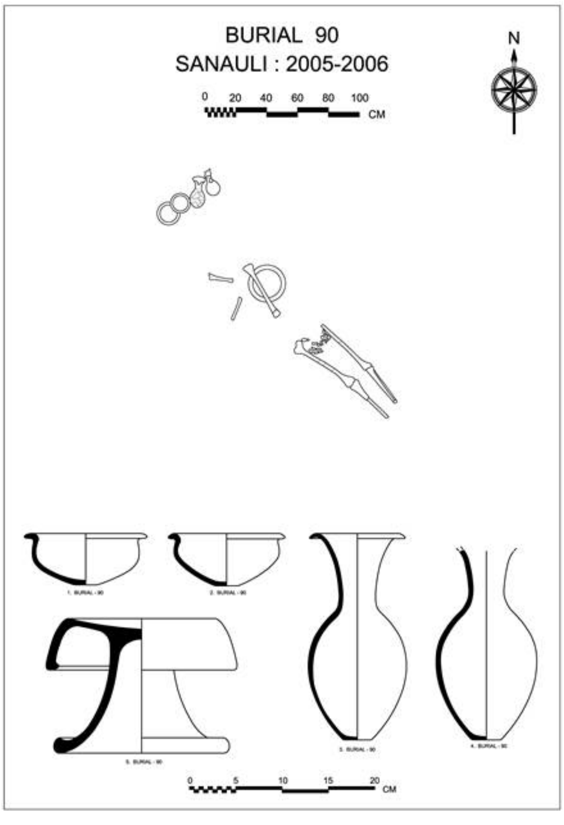


Fig. 5.238: Burial 90 and associated pottery forms, Sanauli

The burial consists of disturbed skeletal remains along with the burial pottery. The skeletal remains consist of two femurs, portion of two tibias, one humerus and some fragmentary ones. The arrangement of the long bones of the legs indicate its original portion from which the orientation can be deduced as northwest

– southeast direction with a 49.9^0 offset to the left of true North. The remains of fingers of the hands are also noticed placed in between the femurs and joining each other.

The burial furniture consists of pottery vessels placed both at the northwestern portion of the burial as well as below the hip portion. The burial pottery consists of two jars and two bowls placed at the northwestern part corresponding to those near the head, and a dish-on-stand with a typical drooping rim. All the pottery vessels are at a level lower than the skeleton, which corresponds to the general pattern noticed at Sanauli of placing them before the deceased body of individual.

5.5.3.91 Burial 91

The feature named as Burial 91 is of Category D and is located in the southeastern portion of trench YD3 at 227.66 m above MSL and at a depth of 1.77 m below the reference peg. The burial feature consists of a scattered cluster of human skeletal remains. The remains consist of five longer bones and a few fragmentary bones. No burial pottery is associated with this feature.

5.5.3.92 Burial 92

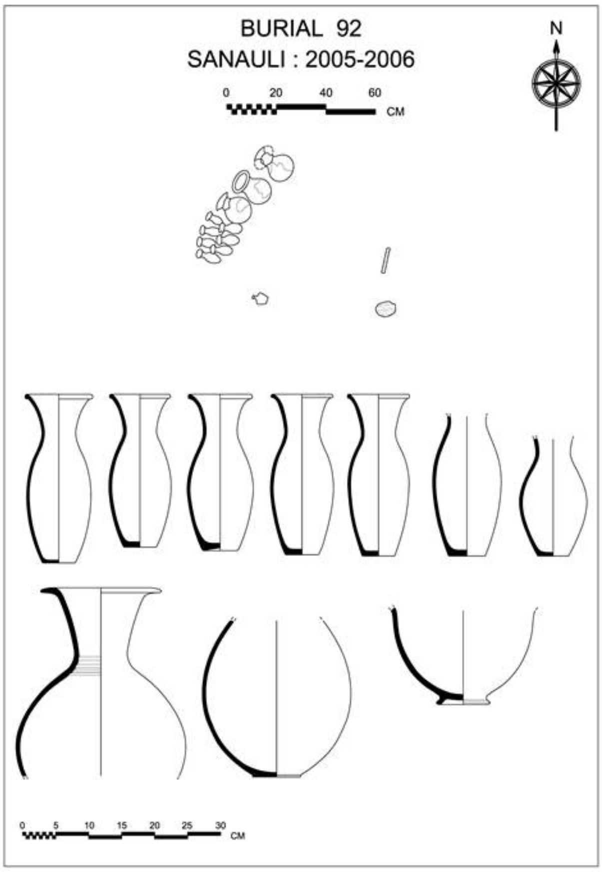


Fig. 5.239: Pottery forms from Burial 92, Sanauli

This burial belongs to the Category B and is located in the northeastern portion of the trench YD2 at 227.38 m above MSL and at a depth of 1.6 m below the reference peg. The skeletal remains consists only of a few fragmentary bones lying at the centre of a northwest – southeast oriented burial. The burial is marked by the placement of a series of burial pottery at the northwestern part. The burial pottery consists of three large and globular jars, seven smaller jars all kept in a row and in a northeast – southwest orientation.

5.5.3.93 Burial 93

This burial belongs to the Category A, located at the southwestern portion of the trench YC3 at 228.59 m above MSL and at a depth of 76 cm below the reference peg. This is a primary burial of the extended inhumation type with the skeletal remains found in a supine position. The unique thing about the skeletal remains is the indication of the body nature of the deceased individual.



Fig. 5.240: Burial 93, Sanauli

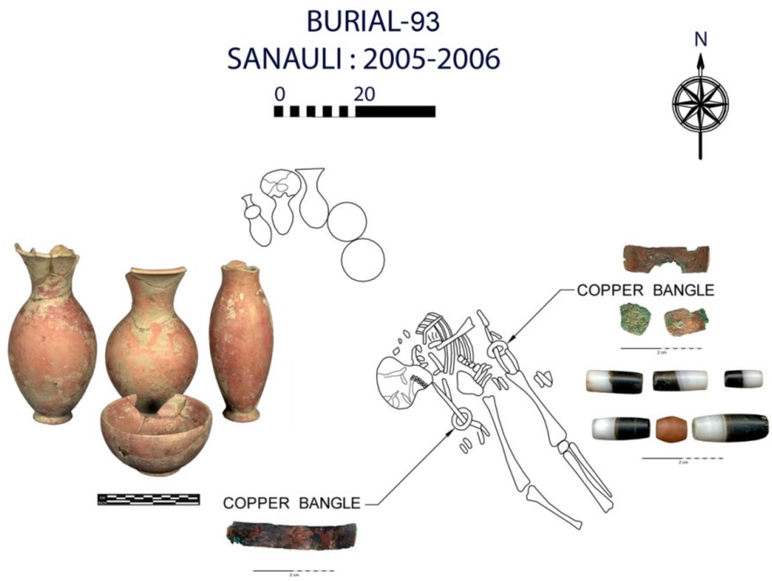


Fig. 5.241: Burial 93, Sanauli

The individual had a hunched back as indicated by the stooping nature of the upper body, which is turned towards the southwestern direction and placed in a

bending position looking downwards. The burial is oriented in a northwest – southeast direction with a 35.37^0 offset to the left of true North. The skeletal remains are more or less complete except the portion below the lower part of tibia.

As mentioned above, the body portion above the pelvis is placed in a bent position thereby turning the body to its left. Both the hands are bent at the knee portion and the left hand is found resting on the pelvis, while the right hand is placed near the pelvis. The legs are placed straight and in an extended position. The burial furniture consists of pottery placed at the northwestern part of the burial. The burial pottery consists of three jars and two bowls. The ornaments worn by the individual consists of two copper bangles, one each found in the arm, around the wrist. The copper bangles are of the flat strip type.

5.5.3.94 Burial 94

This burial belongs to the Category B, located in the southwestern portion of the trench YC4 at 228.48 m above MSL and at a depth of 1.28 m below the reference peg. This burial even though was a primary one originally, is disturbed largely and the skeletal remain consists of only a skull lying near the northwestern portion of the burial, and a little down the burial pottery. The remaining portions of the skeleton are missing. The burial furniture consists of pottery vessels placed at the northwestern portion of the burial and at the centre. The burial pottery at the northwestern part consists of five jars, a bowl, while those at the centre comprises of a large globular jar with a lid, the handle of which is that of a humped bull. The remains of a dish-on-stand and bowl-on-stand also came to light after clearance operation. The large globular jar has incised decorative patterns consisting of horizontal bands alternated with wavy lines, all executed in low relief.

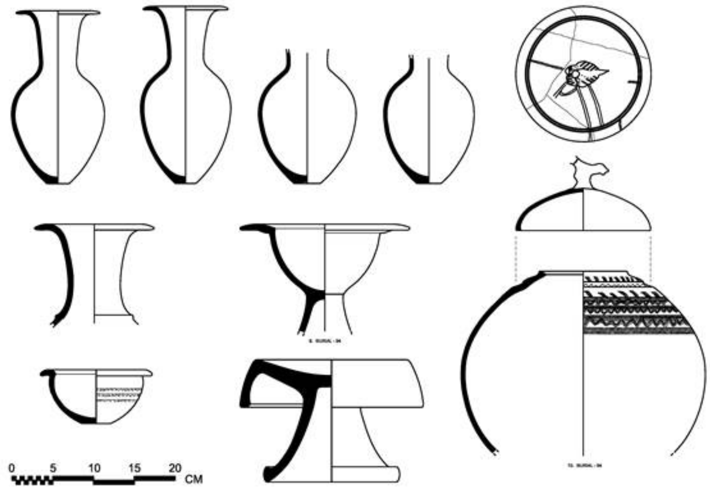


Fig. 5.242: Pottery forms from Burial 94, Sanauli

5.5.3.95 Burial 95

This burial is of the Category A and is located in the mid-northern portion of the trench YC3 at 228.43 m above MSL and at a depth of 75 cm below the reference peg. This is a primary burial of the extended inhumation type with the skeleton found in a supine position. The arrangement of the skeleton indicates its northwest – southeast orientation with a 51.85^0 offset to the left of true North. The skeleton was found in an extended position with the hands and legs also laid straight. The hands are placed along the body and the fingers rest on the pelvis. The legs along with the toes are also placed straight.

This burial is one of the most important one at Sanauli in terms of burial furniture like personal belongings of gold, copper and semi-precious stones. The female, aged about 15 years, wore a close-fitting neck ornament of gold and semi-precious stones and a pair of heart-shaped gold bangles in both the hands. The neck ornament was made by spiraling a thin gold wire around two thick copper wires, held together with small agate beads, which were spaced at intervals. Besides these, eight carnelian beads were found close to the neck, which suggests that an additional neck ornament was worn by the dead. The heart-shaped gold bracelets are similar to those found in the year 2000 at Mandi (District Muzaffarnagar, U.P.) where a large hoard of ornaments of gold, silver and semi-precious stones were found in the Harappan context by the villagers almost accidentally.

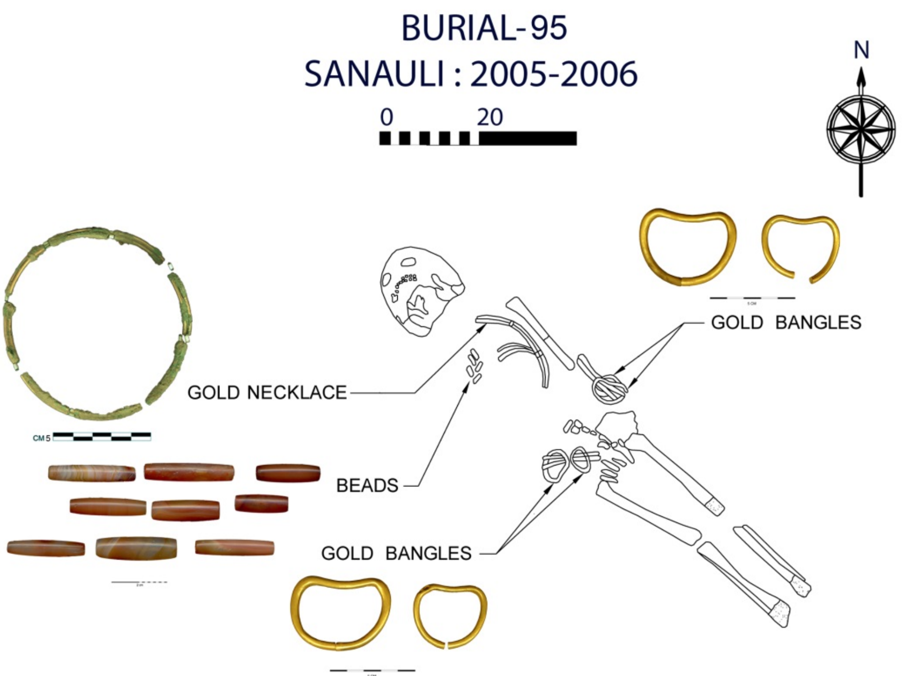


Fig. 5.243: Burial 95, Sanauli

Below the hip of the dead was found a copper bowl, placed upside down. To the northwest of it were found the usual pottery vessels, 2 flasks and 4 bowls. Considering the fact that the dish-on-stand was generally placed below the hip of the dead, it may be presumed that in this case, the copper bowl had replaced the dish-on-stand. The precious gold ornaments worn by this female is, however, clearly indicative of the elite status of the person. It is not unlikely that all such graves containing gold ornaments in appreciable quantity may have belonged to the elite.



Fig. 5.244: Burial 95, Sanauli



Fig. 5.245: Gold ornaments, Burial 95



Fig. 5.246: Gold bangles, Burial 95



Fig. 5.247: Gold bangles, Burial 95

5.5.3.96 Burial 96

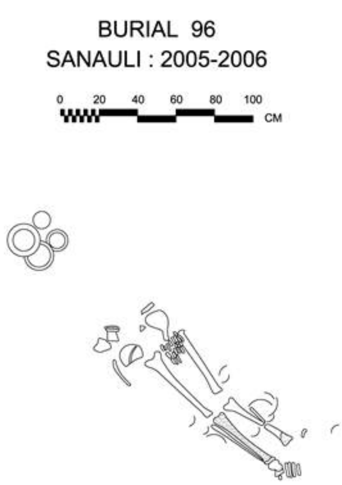


Fig. 5.248: Burial 96, Sanauli

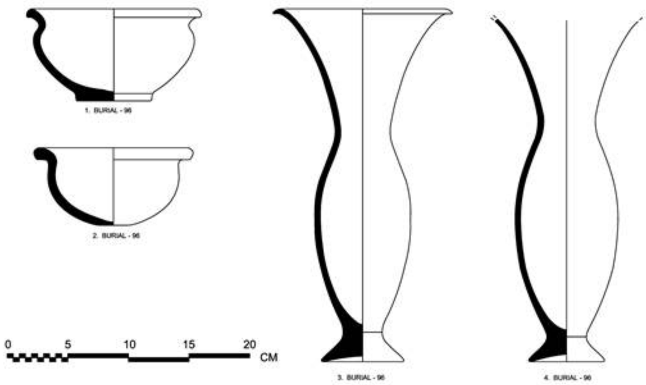


Fig. 5.248a: Pottery forms from Burial 96, Sanauli

The burial is of the Category B and is located in the trench YC1 at 228.56 m above MSL at a depth of 69 cm below the reference peg. The burial is a primary one but disturbed largely and the skeletal remains above the pelvis are not available. Even the bones below the pelvis except the longer bones are in a topsy-turvy condition along with several other fragmentary bones. The alignment of the longer bones of legs indicates a northwest – southeast orientation with a 47.7^0 offset to the left of true North. The pelvic bone is also broken into pieces and lying disturbed. Over the left portion of the pelvis is found the placement of fingers of left hand. While the right leg is found more or less in an undisturbed position, the left leg is bent inwards at the knee portion towards the right one. The toes of the left leg are missing while that of the right leg is found intact. The burial furniture consists of pottery placed at the northwestern part of the burial. The burial pottery consists of two jars and two bowls.

5.5.3.97 Burial 97

The feature named as Burial 97 is of Category E and is located in the mid-southern part of the trench YC4 at 228.59 m above MSL at a depth of 84 cm below the reference peg. The burial feature is only represented by the presence of a solitary skull along with a fragment of mandible.

5.5.3.98 Burial 98

The burial is of the Category A and is located in the northwestern part of the trench YC2 at 228.43 m above MSL at a depth of 1.08 m below the reference peg. This is a primary burial of the extended inhumation type and the skeleton is found kept in a supine position. The skeletal remains are preserved in a fair condition except the toe portion of both the legs, which are missing. The hands are placed straight along the body, the right hand lying near the upper part of right femur, while

the left arm is placed on the left portion of pelvis. The legs are also lying straight and extended.

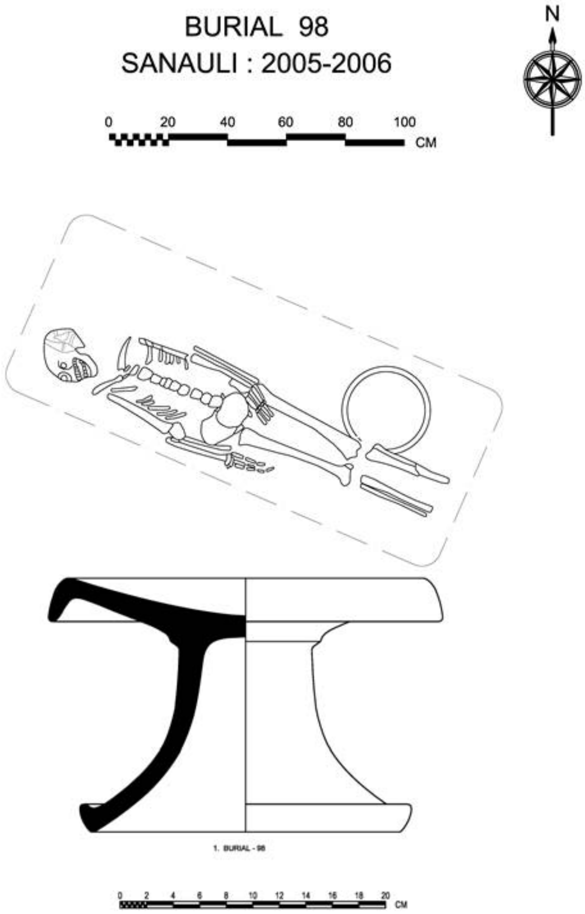


Fig. 5.249: Burial 98 and the pottery find, Sanauli

The arrangement of the skeleton indicates its northwest – southeast orientation with a 66.5^0 offset to the left of true North. The skull is placed turned to the right and faces the southwestern direction. The usual pottery assemblage found near the head portion is missing in this case. The burial furniture consists of a dish-on-stand kept below the knee portion of the leg.

5.5.3.99 Burial 99

This burial is of the Category A and is located in the northwestern portion of the trench YB1 at 228.05 m above MSL and at a depth of 23 cm below the reference peg. This belongs to that of a child and is a primary burial of the extended inhumation type with the skeletal remains found in a supine position.

The arrangement of the skeletal remains indicates its orientation as northwest – southeast direction with a 51.98^0 offset to the left of true North. The skeletal remains are more or less fairly preserved with the portions of ribs, fingers are missing. The left leg below the lower portion of tibia is also missing. The pelvis

is also found in two fragments indicating the nature of child bones. The upper portion of the skull is missing.

The burial furniture consists of pottery vessels placed at the northwestern portion of the burial. The burial pottery consists of two jars and a bowl. The upper portion of the vases is missing.

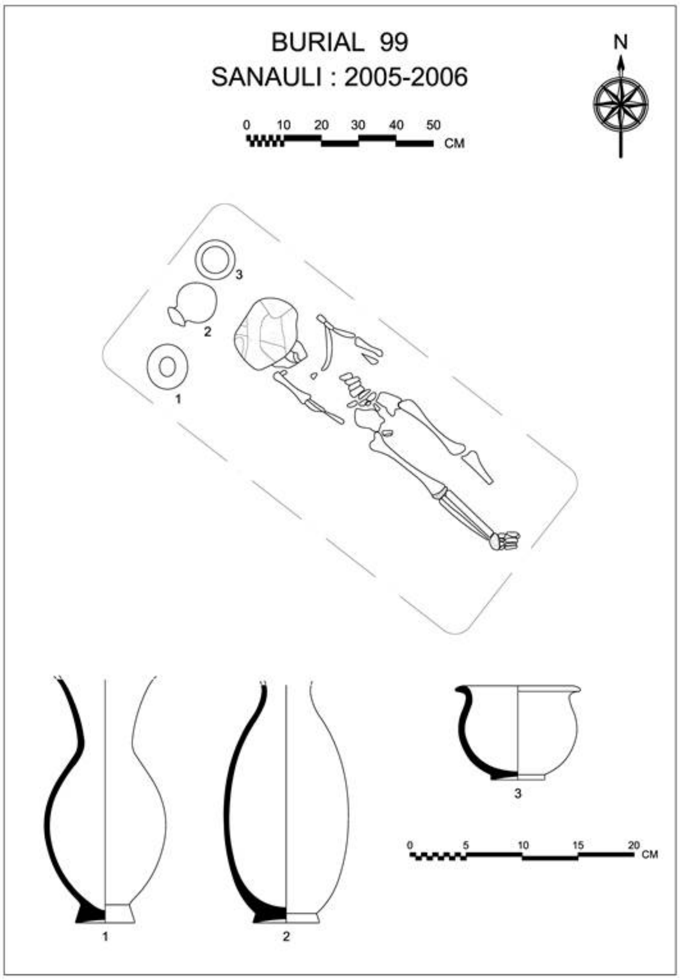


Fig. 5.250: Burial 99 and pottery forms, Sanauli

5.5.3.100 Burial 100

This burial is of the Category A and is located in the mid-southern portion of the trench YA1 at 228.71 m above MSL and at a depth of 57 cm below the reference peg. This is a primary burial of the extended inhumation type with the skeletal remains found in a supine position and the upper part of the body turned towards the left. The skull is also turned towards the southwestern direction. The orientation of the burial is in northwest – southeast direction with a 61.69^0 offset to the left of true North. The burial is found at a depth of 47 cm below the Burial 4. The lower portion of Burial 100 and upper portion of Burial 4 overlap, with the latter above the former. The skull is damaged and only preserved partially.

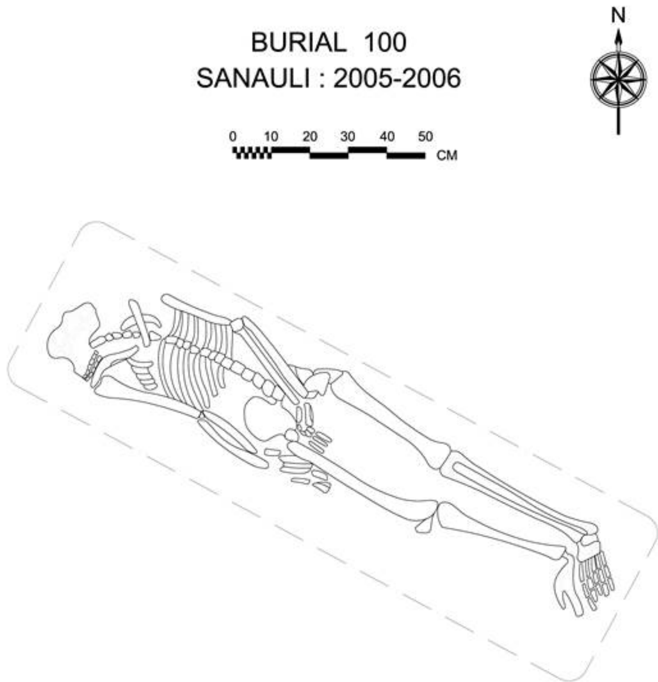


Fig. 5.251: Burial 100, Sanauli

The remaining portion of the body is preserved in a fair condition. The hands and legs are placed straight and in an extended position. While the right hand is placed along the right side of the body and the fingers rest near the upper part of right femur, the left hand is placed on the top of the body as it is tilted and turned towards the left, and the lower forearm bent across with the fingers resting in the space between two femurs. The legs being kept straight, the left leg is placed over the right one at the lower half with the left toes resting over right ones.

5.5.3.101 Burial 101

This burial belongs to the Category D and is located in the southwestern part of the trench YC3 at 228.68 m above MSL and at a depth of 83 cm below the reference peg. Only the remains of four long bones represent the burial feature. The arrangement of bones indicate its orientation as northwest – southeast direction with an offset of 30.78^0 to the left of true North.

5.5.3.102 Burial 102

The feature named as Burial 102 belongs to the Category E. It is located in the southwestern corner of trench YC3 at 228.5 m above MSL at a depth of 1.01 m below the reference peg. The burial feature is represented only by the remains of a cluster of pottery vessels typically found in a complete burial. The burial pottery consists of two jars and two bowls.

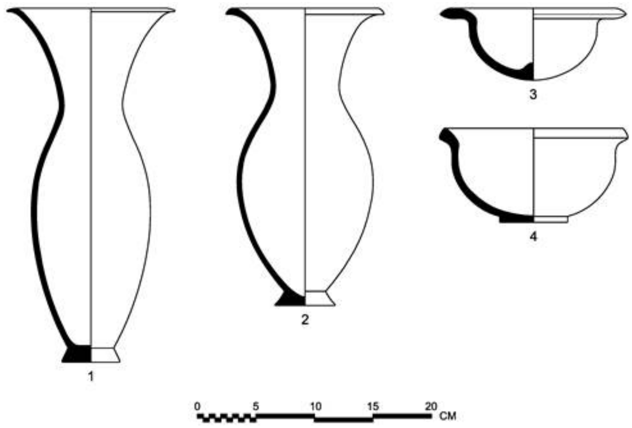


Fig. 5.252: Pottery forms from Burial 102, Sanauli

5.5.3.103 Burial 103

The burial is of the Category B and it located in the mid-southern portion of YC4 at 229.05 m above MSL and at a depth of 38 cm below the reference peg. This was originally a primary burial. It belongs to the extended inhumation type and the position of the skeletal remains indicate it possibility of supine position. The burial is represented only by the skeletal remains preserved with the pelvis and down below. The pelvis is also preserved only partially. The upper part of right femur is not preserved as is the case with toes of both the legs. The skeletal remains above the pelvis are completely missing except a long bone of the left hand. The arrangement and placement of the longer bones of the leg along with the pelvis indicate its orientation as northwest – southeast direction with an offset of 55.66^0 to the left of true North. This burial is not associated with any pottery goods as the upper half is completely disturbed and missing.

5.5.3.104 Burial 104

The feature named as Burial 104 is actually a part of the Burial 79. This feature is found in the central portion of YD3 at 228.76 m above MSL and at a depth of 66 cm below the reference peg. The feature consists of three pottery vessels, which form part of the burial goods of Burial 79. The details of the Burial 79 are given under 5.5.3.79.

5.5.3.105 Burial 105

The feature named as Burial 105 is actually a part of the Burial 81, which was extensively damaged by the Burial 10. This feature is located in the mid-northern portion of the trench YD3 at 228.45 m above MSL and at a depth of 83 cm below the reference peg. The details of the Burial 10 is given under 5.5.3.10.

5.5.3.106 Burial 106

This burial belongs to the Category C, which is a symbolic burial. This burial is located at the northwestern corner of trench YC3 at 228.17 m above MSL and at a depth of 2.17 m below the reference peg.



Fig. 5.253: Burial 106, Sanauli

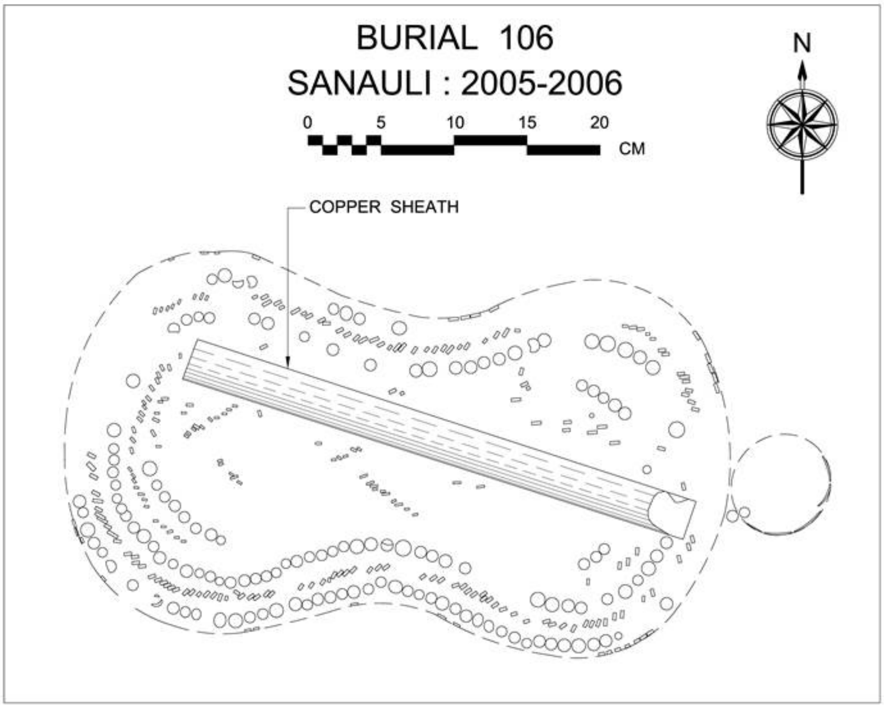


Fig. 5.254: Burial 106, Sanauli

The arrangement of the symbolic burial consists of placing disc shaped steatite inlays in the shape of a violin to mark its outline. There were possibly five parallel rows of these inlays. First, there was a row of circular inlays, which alternated with an inner row of rectangular inlays, the latter arranged in vertical and oblique manner, giving an impression of twisted gold or copper wire. An additional interesting feature associated with this burial was more of these inlays in circular form on one side looking like a head. The overall composition seems to represent a

human effigy laid east-west. Strangely enough, there was no earthen vessel in this grave.

Like Burial 14, it was also devoid of any skeletal remains, and instead contained a copper sheath placed diagonally upon the effigy. The sheath, which is a part of weaponry in the grave furniture, perhaps commemorates its master who might have died in odd circumstances. As his corporeal remains could not be located, his personal weapon, the sheath only, was buried here. Close to the human effigy, towards its north, was exposed a curvilinear copper object, preserved in fragments only. As its complete dimensions were not recovered, its shape, size, nature and purpose remained undetermined.

5.5.3.107 Burial 107

This burial belongs to Category B and is located in the balk between the trenches YA1 and XA1 at 228.28 m above MSL and at a depth of 5 cm below the reference peg. This was originally a primary burial. It belongs to the extended inhumation type that can be deduced from the arrangement of longer bones and pelvis. The orientation deduced by this arrangement is northwest – southeast direction with an offset of 40.57^0 to the left of true North.

The skeletal remains consist of only portions of pelvis, upper part of left femur and fragment of right femur and a few bones of spine. The remaining bones are missing. The burial furniture consists of pottery vessels placed at the northwestern part of the burial. The burial pottery consists of a vase, a *lota* shaped small jar and two bowls.

5.5.3.108 Burial 108

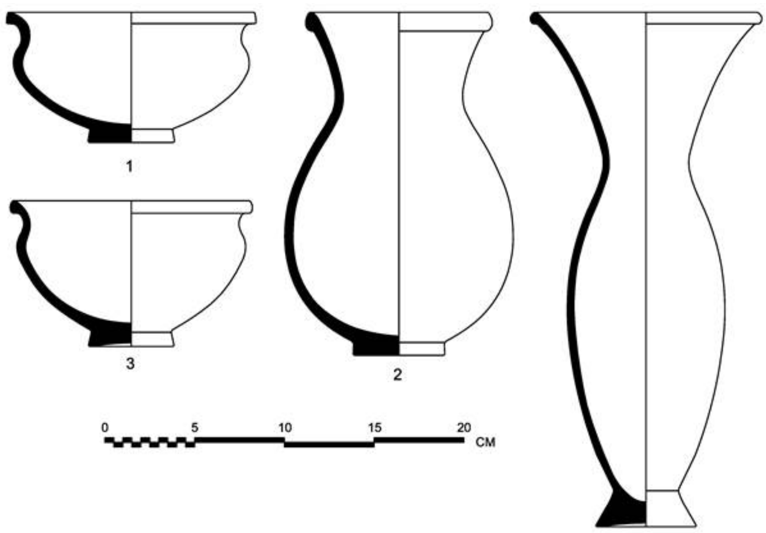


Fig. 5.255: Pottery forms from Burial 108, Sanauli

The feature named as Burial 108 is located in the northeastern portion of trench YC1 at 228.31 m above MSL at a depth of 80 cm below the reference peg. This burial belongs to the Category E and is an isolated remains of pottery vessels generally found in a burial complex. The burial pottery consists of a jar, a *lota* shaped jar, and two bowls.

5.5.3.109 Burial 109

The feature named as Burial 109 belongs to the Category E. It is located in the northeastern portion of trench YC1 at 228.31 m above MSL and at a depth of 31 cm below the reference peg. This burial feature consists of only isolated remains of pottery vessels, normally associated with a complete burial. The burial pottery consists of a bowl and a *lota*-shaped jar.

5.5.3.110 Burial 110

This burial feature belongs to Category B and is located in the mid-western portion of trench YC3 at 228.66 m above MSL, at a depth of 85 cm below the reference peg. This burial feature is a highly disturbed one with the occurrence of only three longer bones along with a few fragmentary ones.

The pottery remains from this burial feature consists of one vase. The pottery along with the bones seems to be in a disturbed condition.

5.5.3.111 Burial 111

The feature named as Burial 111 belongs to the Category E. The burial feature is located in the mid-eastern portion of the trench YC3 at 227.89 m above MSL and at a depth of 1.6 m below the reference peg.

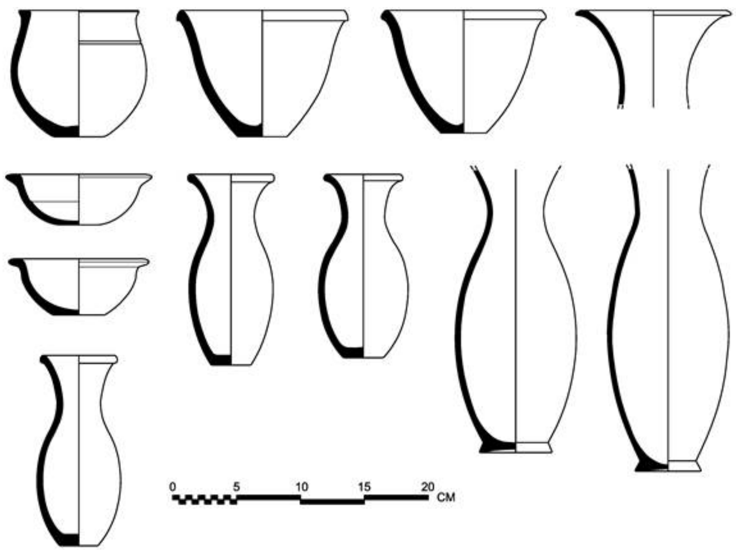


Fig. 5.256: Pottery forms from Burial 111, Sanauli

The burial feature consists of only an arrangement of burial pottery normally associated with a complete burial. The burial pottery consists of six jars, two shallow bowls, two deep bowls and a small bowl-pot. This burial also yielded a copper spearhead in a secondary condition. The spearhead preserved mat impressions indicating its receptacle in the form of a mat prepared from dry reeds.

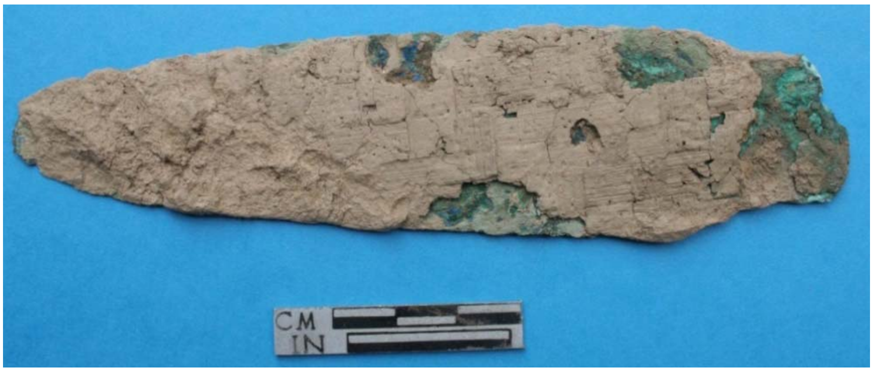


Fig. 5.257: Copper spearhead, Burial 111, Sanauli

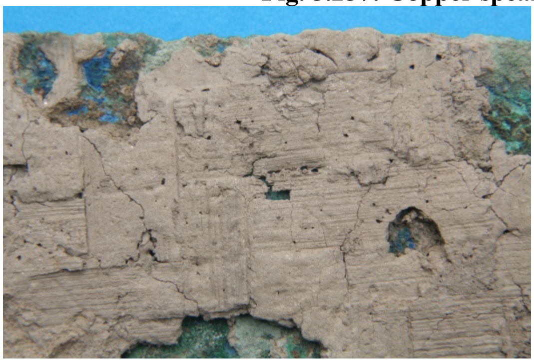


Fig. 5.258



Fig. 5.259

Fig. 5.258 & 5.259: Mat impression on copper spearhead, Burial 111

5.5.3.112 Burial 112

The burial belongs to the Category B and is located in the southern balk portion between the trenches YC4 and YD4 at 228.49 m above MSL and at a depth of 95 cm below the reference peg. The burial feature consists of a placement of skeletal remains in a northwest – southeast orientation with an offset of 53.2^0 to the left of true North.

The skeletal remains consist of a partially preserved skull, longer bones, probably of legs and hands and spinal bones. The burial is found immediately underneath the Burial 51, separated only marginally.

The burial pottery consists of only one vase kept at the northeast of the burial.

5.5.3.113 Burial 113

This burial belongs to the Category B and is located in the trench YD3 at 228.53 m above MSL and at a depth of 1.14 m below the peg YC3. This was

originally a primary burial, but was damaged extensively. This burial itself disturbed another burial, namely Burial 79 due to the digging of grave pit. The orientation of this burial is determined based on the burial pottery and the fragmentary bone remains. The orientation of this burial is again in northwest – southeast direction with a 49^0 offset to the left of true North. The skeletal remains are represented only by the presence of a longer bone and other fragmentary bones.

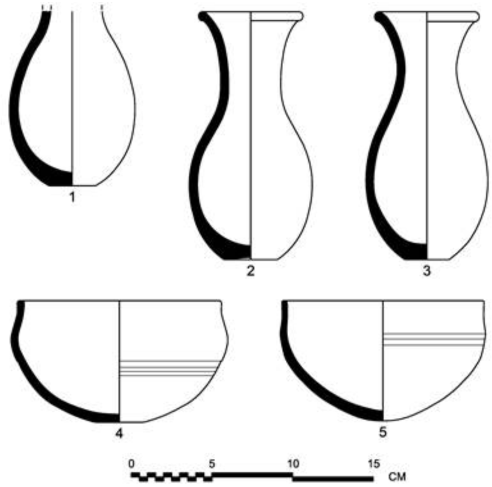


Fig. 5.260: Pottery forms from Burial 113, Sanauli

5.5.3.114 Burial 114

The feature named as Burial 114 belongs to the Category D. The burial feature is located at the southeastern corner in the trench YD4 at 228.59 m above MSL and at a depth of 8 – 85 cm below the reference peg. This burial feature is an assortment of six – seven femur bones along with other long bones and fragmentary ones. This burial feature seems to be the debris from other burials disturbed due to later period diggings for fresh burials. The burials located in close proximity to this burial feature are Burials 69 and 115.


Fig. 5.261: Disturbed bones from Burial 114, Sanauli

Of these, the Burial 69 is categorised as a Triple Burial and complete skeletal remains of three individuals were not discovered from this one. Similarly, the Burial 115 is a disturbed burial with only the skull and fragmentary bones remaining. Under these circumstances, it may not be ruled out here that the burial feature 114 could have bones from two or three other burials, collected and disposed here.

5.5.3.115 Burial 115

The feature named as Burial 115 belongs to Category D and is located in the northeastern corner of YD3 at 228.36 m above MSL, at a depth of 1.08 m below the reference peg. The burial feature consists of only a skull and some longer bones. The other features associated with this burial are fragmentary pottery pieces.

5.5.3.116 Burial 116

The Burial 116 belongs to the Category C and is located in the junction of trenches YC3, YD3, YC4 and YD4 at 227.27 m above MSL, at a depth of 2.17 m below the reference peg. This is a symbolic burial characterised by the arrangement of around 600 faience beds in the shape of a violin resembling the shapes in Burials 28 and 106. Another unique feature of this burial is the construction of a burial chamber using mud-bricks, which was traced at the northwestern and northeastern corner of the burial. The mud-brick wall could not be traced completely and hence the shape and size of the burial chamber not understood properly. The excavated remains indicate that there are nine courses of mud-bricks exposed at the northwestern portion of the burial chamber.



Fig. 5.262: Burial 116, Sanauli

The average thickness of the mud-bricks used in the construction is 6.93 cm with the sizes varying from 4.72 – 7.96 cm. The burial furniture consists of a group of pottery vessels kept at the northwestern part of the burial and along the mud-brick wall. The burial pottery consists of nine smaller jars, three large jars with globular body, two bowls and a small jar. One of the bowls is kept over the violin shaped design made using the faience beads.



Fig. 5.263: Burial 116, Sanauli



Fig. 5.264: Burial 116, Sanauli

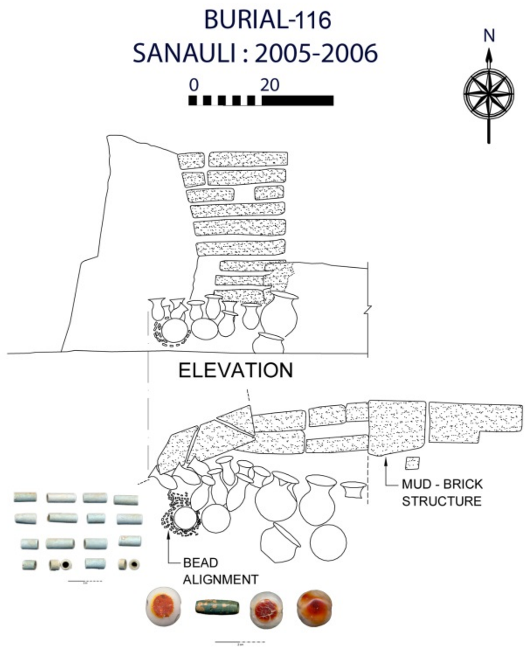


Fig. 5.265: Burial 116, Sanauli

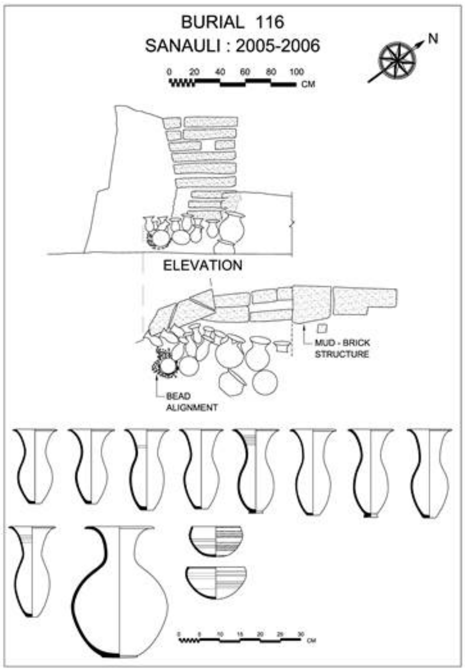


Fig. 5.266: Pottery forms, Burial 116

5.5.4 Burial goods

The burial goods from the various interments at Sanauli help in understanding the idea of afterlife of the contemporary society. The nature of the burial goods chiefly consists of pottery vessels, personal ornaments of various kinds of stone, copper, gold. Binford identifies four main 'contingencies' for differential mortuary treatment, which are based on *"(1) age, (2) sex, (3) relative rank and distinctiveness of the social position occupied by the deceased within the social unit,*

and (4) the affiliation of the deceased with respect to membership segments of the broader social unit, or in the case of intersocietal symbolism, the form appropriate to the society itself."[138] Binford further adds that the peculiar circumstances such as war, lightning, etc., in which a person dies, may also add value to his / her social standing and hence given a special mortuary treatment.[139] A cross-cultural study of 103 societies by Tainter has enabled to identify 'a set of practices' that can be associated with social rank.[140] They are *"…..(1) the complexity of body treatment, (2) construction and placement of interment facility, (3) the extent and duration of mortuary ritual, (4) material contributions to the ritual, and (5) human sacrifice."*[141] The study by Tainter also indicated that the nature of burial goods found in a burial does not directly reflect the social status and only 5% out of the 93 societies surveyed by him indicated otherwise.[142] In other words, the burial furniture alone is not sufficient to indicate the social status of the person in the burial. Binford, however, differs and states that status is indicated *"….by the quantities of goods contributed to the grave furniture."*[143]

Kenoyer observes in the context of Harappan burials, *"….inclusion of modest personal ornaments may have served to identify the social and ritual status of the individual in the other world……variations in the number of funerary offerings and ornaments with each burial, possibly indicating minor differences in social or ritual status."*[144] Kenoyer also notes the absence of *"..high-value objects such as copper tools and ornaments of gold and long carnelian beads...."* and *"…ornaments included with Harappan burials were symbolic objects that could not be passed on to the next generation…..Harappan burial customs further reinforce the importance of ornaments and public symbols to define social and ritual status among the living."*[145]

As indicated by Kenoyer in terms of South Asian context, the burial goods can be taken as an indicator for a fair understanding of the status of the individuals at Sanauli based on characteristics like its intrinsic value, rarity and difficulty in procurement. A common feature of the burials is the placement of burial pottery towards the northern portion of the grave pit and in certain instances by the sides of the body. The significance of the pottery from the burials and its probable function is discussed under 5.5.4.1 while parallels in ancient literature are discussed under Chapter 6. While the pottery can be taken as a normal occurrence from the burials due its availability from invariably all burials, the other associated burial furniture

like stone beads, copper and gold bangles, copper swords and sheath can be categorised as a special class itself. This is due to the rarity and difficulty in procurement of such artefacts and may indicate the social status of the interred individual. The following sub-chapters discusses on the various burial furniture found from the burials to understand its significance.

5.5.4.1 Pottery

One of the major components of burial goods from burials of Harappan context is the pottery of various kinds and shapes. The mature Harappan burials often contain painted pottery the types of which are also found from the habitation sites. The examples of presence of painted pottery are noticeable from Harappa, Kalibangan, Lothal, etc. Sanauli, in terms of burial pottery is not an exception of the general typology of pottery found from other sites. The presence of painted pottery is also found from the Sanauli burials, even though they do not belong to the hallmark Harappan designs and motifs.

The burial pottery from Sanauli remains is the only available evidence to determine and reconstruct the typology, as the remains of habitation site could not be traced due to extensive agricultural activities. The burial pottery from Sanauli does give a good picture on the typology based on which the assemblage can be placed in the late Harappan context. As explained elsewhere, the burial pottery is placed either to the north of the skeletal remains or along its sides. It is also observed that the burial pottery is placed either at a lower level of the skeletal remains or at the same level. This is a clear indication of performing certain rituals before, during and after placing of deceased individuals. The references from historical literature like *Atharvaveda,* which is discussed in 6.6.8, indicate that the pottery vessels might have meant for offering various types of food for the dead.

An attempt was made to classify the pottery finds from Sanauli based on the explorations by D.V.Sharma *et al,* which is also discussed under 5.4.1.[146] However, the excavations at Sanauli have enabled to revise the typology of the pottery forms discussed as mentioned above.

In order to arrive at a standardised description of pottery finds from Sanauli, the classification proposed[147] by Dales and Kenoyer while describing the Mohenjo-daro pottery is adopted to a large extent along with the nomenclature normally adopted in South Asia for Harappan pottery. The following is the classification proposed by Dales and Kenoyer:[148]

(A) ***Jars:*** *"……a Jar is a vessel that is taller than it is broad, i.e. its internal height is greater than that its maximum body diameter."*

(B) ***Pots:*** *"….pot body forms are globular, with internal height equal to the maximum body diameter, or squat, with internal height less than maximum body diameter….both pots and bowls can be restricted or open so these form characteristics are not sufficient to define the boundary between the classes."*

(C) ***Bowls:*** *"Vessels that have an internal height less than one-half the maximum body diameter are categorized as either Bowls or Dishes."*

(D) ***Dishes:*** *"Dishes are extremely squat open vessels whose internal height is equal to or less than one-sixth of the maximum body diameter."*

The types of pottery from the Sanauli burials are as follows:

(i) Dish-on-stand

Dales and Kenoyer uses the term "pedestalled dish" for this category. However, for convenience sake, the most accepted nomenclature for this variety, i.e. dish-on-stand is used here. The dish-on-stand is one of the prominent pottery types from the burials. As described above, the dish-on-stand is invariably found placed below the body portion of the deceased individual, often at a lower level. The best examples of such placement are from Burial 1 and 13. In the case of Burial 69, three dish-on-stands are found, indicating interment of three individuals. The anthropological analysis also indicated that bones of at least two individuals have been identified from this burial.

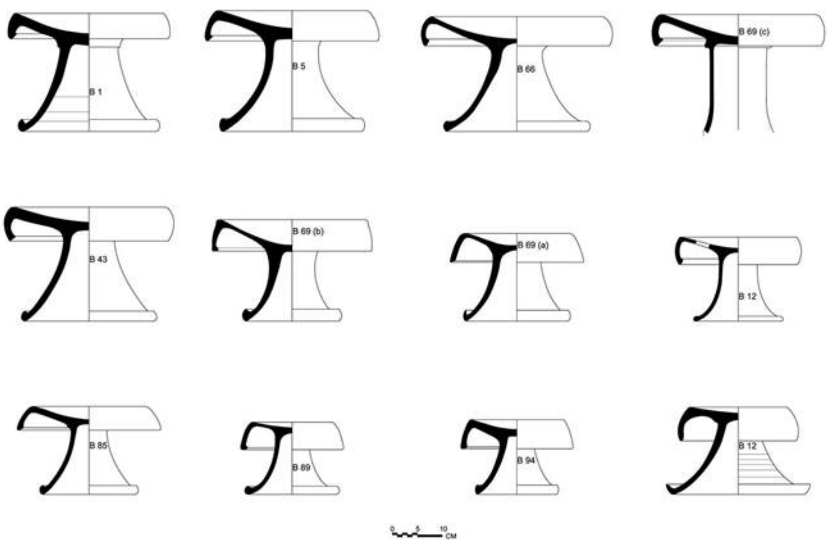


Fig. 5.267: Types of dish-on-stand, Sanauli

The dish-on-stand discovered from the burials correspond to the ones found from explorations and is marked by the typical drooping rim of the dish. One specimen of dish-on-stand with drooping rim as well as upward projecting base is described at 5.4.1. The excavation brought to light three more specimens of similar type, two from Burial 28 and one from Burial 63.

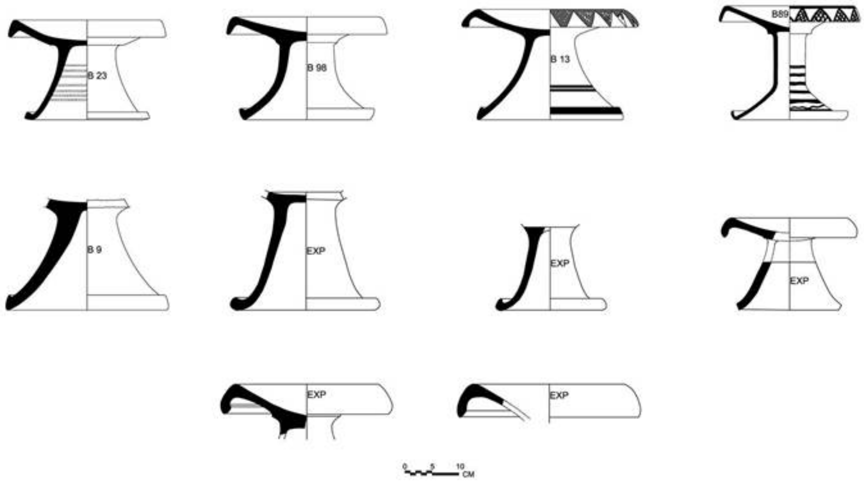


Fig. 5.268: Types of dish-on-stand, Sanauli

Therefore, the dish-on-stands of drooping rim and base belong to a sub-category. However, the dominant variety among the dish-on-stands are the ones with drooping rims ranging from a slight drooping feature to a more pronounced drooping feature, and with a base with upward beaded shape. This variety dominates the findings from Sanauli with a total number of sixteen complete specimens and one broken one. The dish-on-stands are also found painted with black coloured motifs, the examples are from Burial 13 and 69. Both these specimens have bands of triangles filled with cross-hatchings executed on the outer lip portion of dish. The specimen from Burial 89 has horizontal bands on the trunk as well in addition to the dish portion.

Invariably, all the dish-on-stands from the Sanauli burials are of well-fired category and manufactured using luting technique, with the dish and stem manufactured separately and joined together. Some specimen preserve a slip, red in colour, otherwise a majority of the pottery is devoid of any slip. The prominent shapes of the dish-on-stands are shown in Figs. 5.266, 5.267, and 5.268. Apart from only one specimen of grey dish-on-stand with typical geometrical motifs executed with a steatite paste, which was found from exploration and discussed under 5.4.1.1., all the other ones are of red ware.

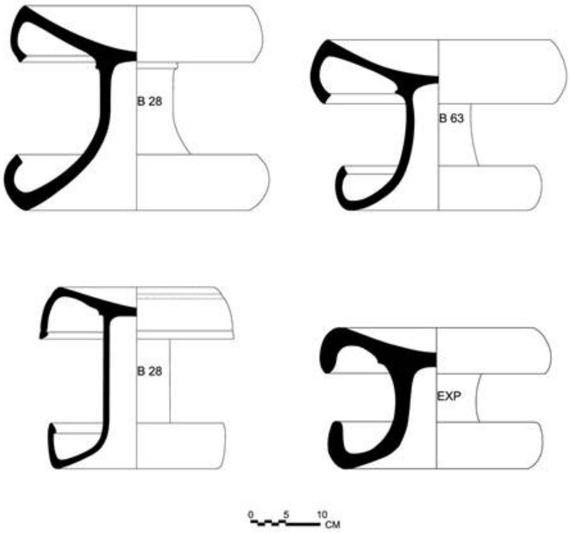


Fig. 5.269: Types of dish-on-stand, Sanauli

As demonstrated by Sharma *et al*, the dish-on-stands are comparable with the evidences from other late Harappan sites like Bhagwanpura, Hulas, Mitathal and OCP sites like Kazimpur. However, the new additions from Sanauli are the ones with both upward and downward projecting rims, and one specimen resembling a mushroom shaped variety from Burial 28.

(ii) Bowl-on-stand

Dales and Kenoyer also place this variety under pedestalled dish while discussing the Mohenjo-daro pottery. The type of pottery, classified here, as bowl-on-stand is different from the types described by Dales and Kenoyer. A slight variant of bowl-on-stand is categorised as pedestalled bowl by Uesugi from Farmana, which belongs to non-Harappan pottery from the mature Harappan context.[149]

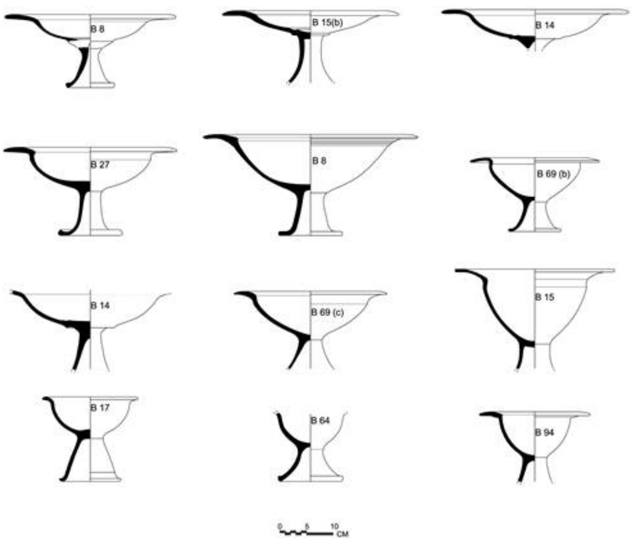


Fig. 5.270: Types of bowl-on-stand, Sanauli

The types of bowl-on-stand found from the Sanauli cemetery is at Fig. 5.270. The stand of this variety of pottery is a miniature version of the stands of dish-on-stands, with a conspicuous base at its end. The figure shows at least three sub-types, the first one characterised by shallow bowls with a short stand; second one with deep bowls and a third variety more or less resembling a chalice. It is also noticed from the above figure, that the third variety is shown in the fourth row. The other two varieties are generally found below the body portion as in the case of dish-on-stand, while the third variety is also found near the northern portion of the burial pit. The bowl-on-stand belongs to the red ware variety from Sanauli and is found generally without slip.

(iii) Bowls

Bowls are generally found along with the tall jars placed at the northern portion of the burial pit and near the head portion of skeletal remains. The bowls from the cemetery can be further sub-divided into 1) bowls with plain featureless rims (B1), 2) bowl-cum-lids, which could have been used as lids also (B2), 3) bowls with an everted rim and with a slight carination (B3), 4) bowls with a distinct base and approaching towards the shape of a pot (B4) and 5) bowl-pots (B5), which are wide mouthed but assuming a roundish and globular body shape. The bowls are found in red ware, well fired in most of the cases and devoid of any slip. It has also been observed that bowls along with the *lota* shaped jars and tall jars are the most conspicuous pottery types in any burial. Even a child burial is found accompanied with a bowl and a jar. Only one specimen of bowl of category B1 is painted on its exterior, which is shown in Fig. 5.237.

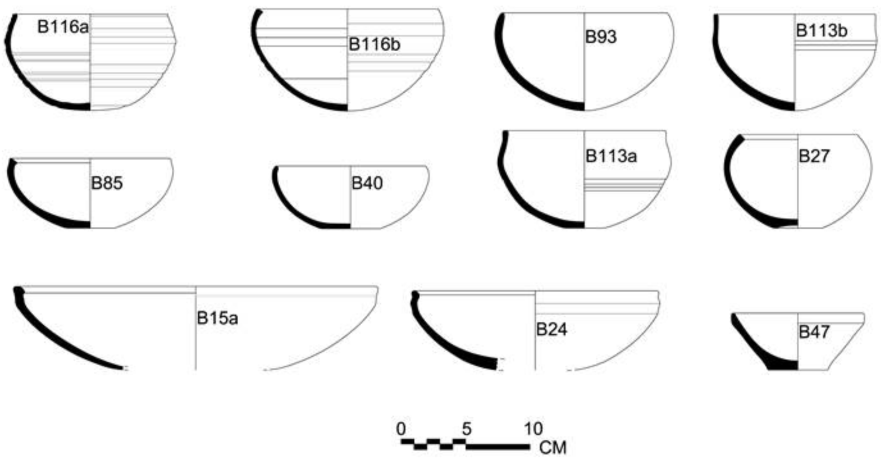


Fig. 5.271: Bowls of the category B1 type, Sanauli

The bowls of the category B1 has a slightly incurving rim, with a convex bottom profile and also with flat-bottomed one, with only one exception, which has

been put under this category based on the plain rim shape. Otherwise, it is with a flat bottom, straight sided and wide mouthed bowl. The bowl shapes of B1 type are shown in Fig. 5.271. The bowls of category B2 have distinct externally protecting beaked rims, which could have served the purpose to rest over the mouth of pots or jars. The bowls belonging to this category is shown in Fig. 5.272.

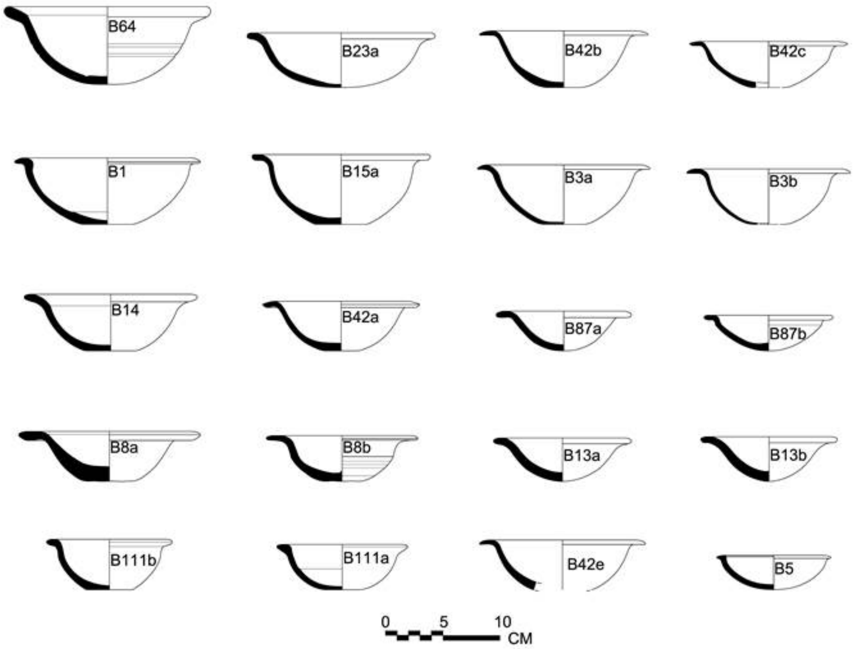


Fig. 5.272: Bowls of the category B2 type, Sanauli

The bowls belonging to category B3 have a distinct or slight carination below the rim portion, which are shown in Fig. 5.273. These bowls also have everted and beaked rims, with the body varying from convex sided to flat bottom one. The bowls of category B4 is also similar to those of B3 with the distinction that the former have a distinct non-contiguous discoid base. The bowl types of category B4 is shown in Fig. 5.274. The bowls belonging to category B5 tends to assume a slightly roundish / globular body shape and hence slightly different from B4. The B5 bowls also have discoid and non-contiguous base, except one specimen with a flat-bottomed one. The bowl types belonging to category B5 is shown in Fig. 5.275. The nature of food or liquid remains that might have been put in the bowls along with the burials is difficult to assume. However, the references from historical literature to liquid foods like curd, ghee, etc., indicates that they could have been filled in wide mouthed bowls like those described above. This can be further tested and inferred through scientific analysis as mentioned elsewhere.

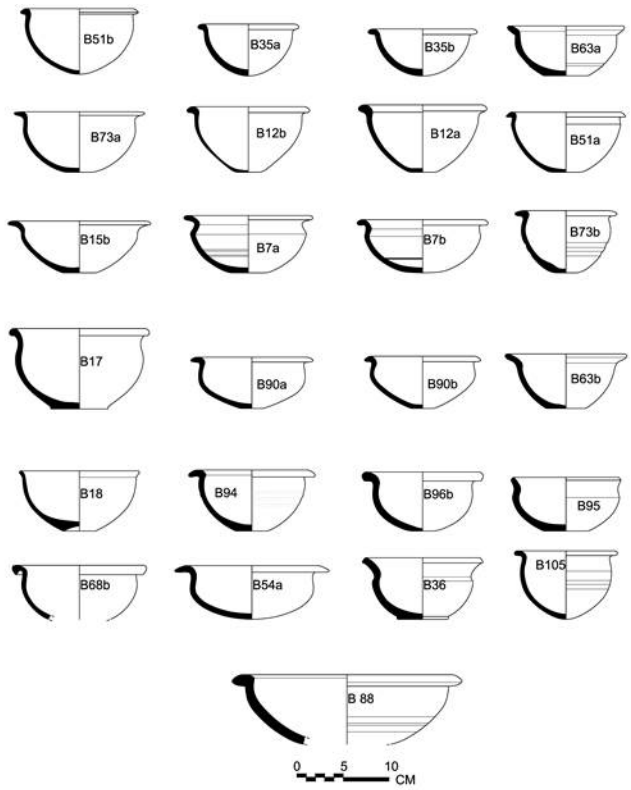


Fig. 5.273: Bowls of the category B3 type, Sanauli

(iv) Deep Bowls

The deep bowls, again found in red ware is distinct from the other bowl types due the internal height more than or equal to the rim diameter. The deep bowls variety from the Sanauli cemetery is found with both flat bottomed one and discoid bases. The body forms of the deep bowl are straight sided, curved as well as with a slight carination below the rim portion. The deep bowl types are shown in the Fig. 5.275.

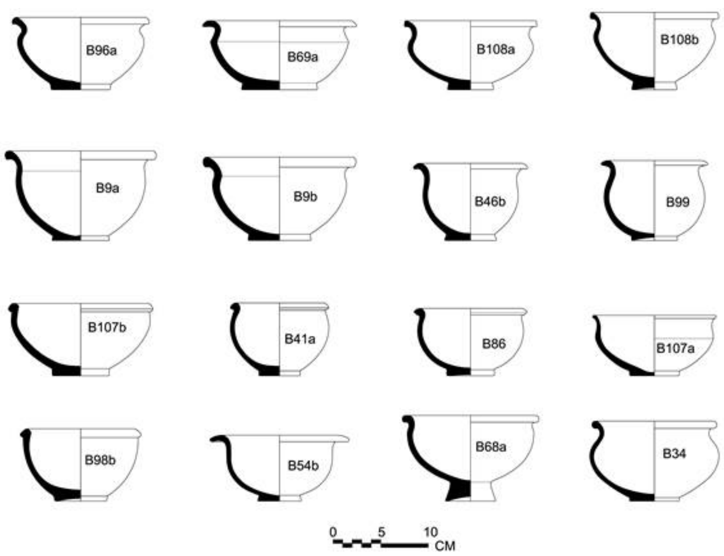


Fig. 5.274: Bowls of the category B4 type, Sanauli

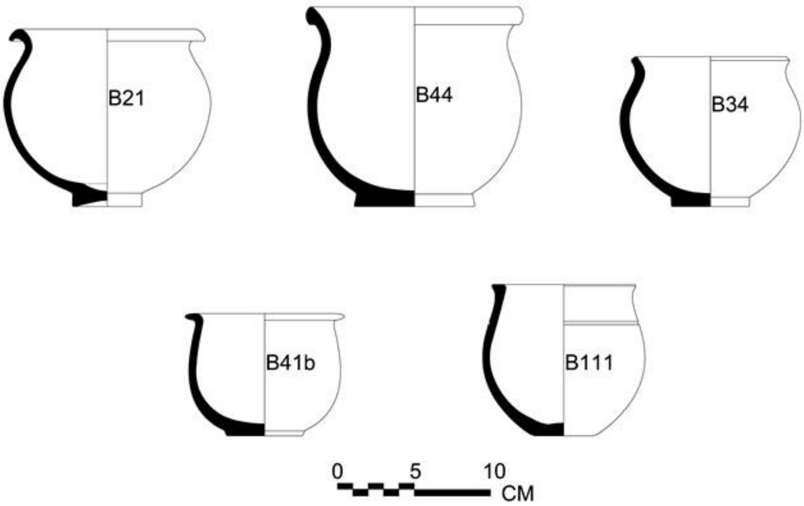


Fig. 5.275: Bowls of the category B5 type, Sanauli

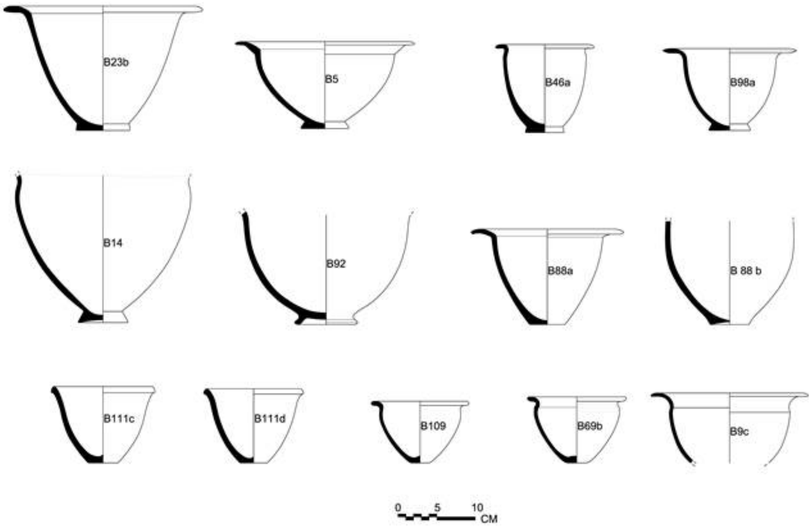


Fig. 5.276: Deep bowl types, Sanauli

(v) Basins

The pottery form classified as basins are wide-mouthed and whose internal height nearly half of the internal rim diameter. They are larger in size than the normal bowl types categorised above from B1 to B5.

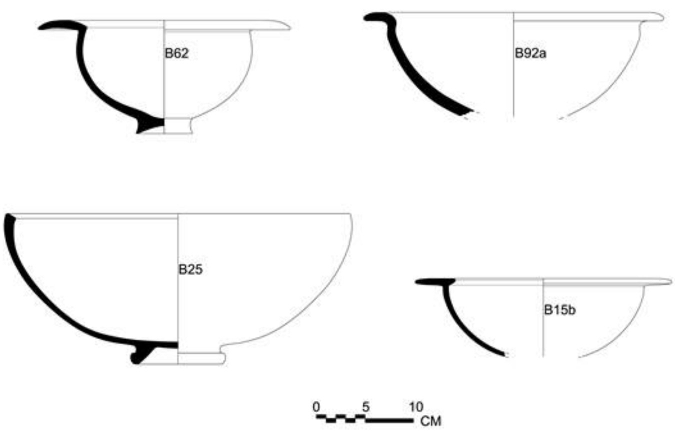


Fig. 5.277: Basin types, Sanauli

The basins are also characterised by both prominent beaked rims as well as one specimen with featureless rim. Only four specimens could be placed under this category, and two are complete having a non-contiguous ring base. The basin forms belonging to this category is shown in Fig. 5.277.

(vi) *Lota* shaped Jars

The *lota* shaped jars are among the other two pottery forms that are invariably found in most of the burials; the other being tall jars and bowls. The various forms under this category are shown in Fig. 5.278.

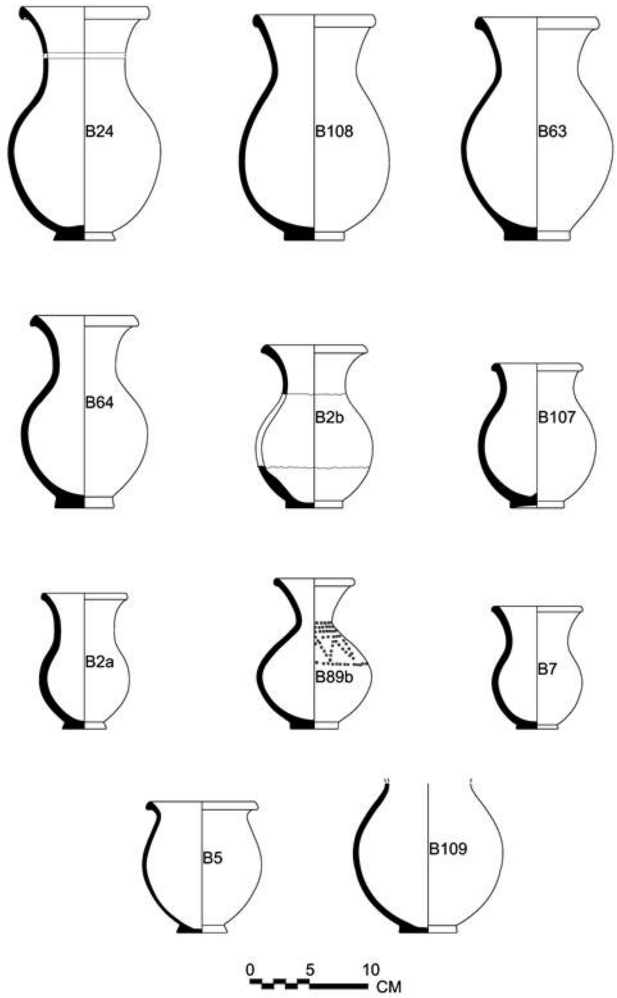


Fig. 5.278: *Lota* shaped jar types, Sanauli

It clearly indicates that the jars have an internal height greater than the rim diameter and have a distinct neck portion, with one exception, which assumes a pot shape. All have distinct non-contiguous discoid base. All the examples are of red ware except one specimen, which is from Burial 89, which is of grey ware. This jar also has decorations on the shoulder portion executed using white paste.

(vii) Jars

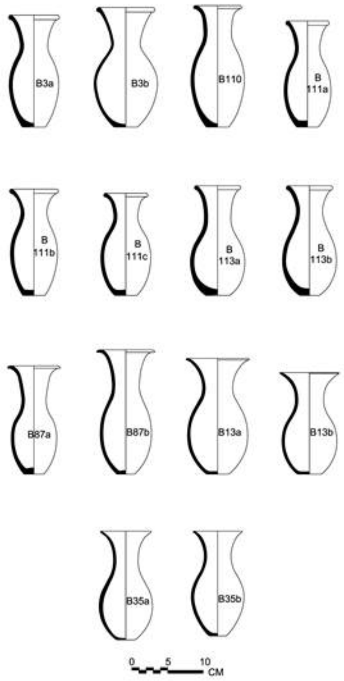


Fig. 5.279: Jars of the category J1 type, Sanauli

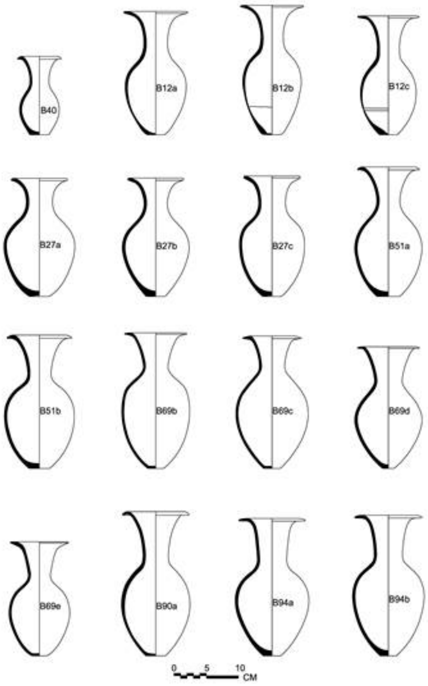


Fig. 5.280: Jars of the category J3 type, Sanauli

Among the pottery types found in Sanauli burials, the tall jars are the most conspicuous items along with bowls. The jars are predominantly of red ware, with one exception of black colour, which could have been due to accidental firing instead of intentional colouring. The tall jars are slender in shape, with various body profiles such as conical, bulbous, and elliptical. The variations are noticed in the shape of rim, neck portions too. Except one specimen from Burial 8, which is black in colour, all the other jars are of red ware, also treated with bright red slip in some cases. The jar types are shown in Figs. 5.278 – 5.286.

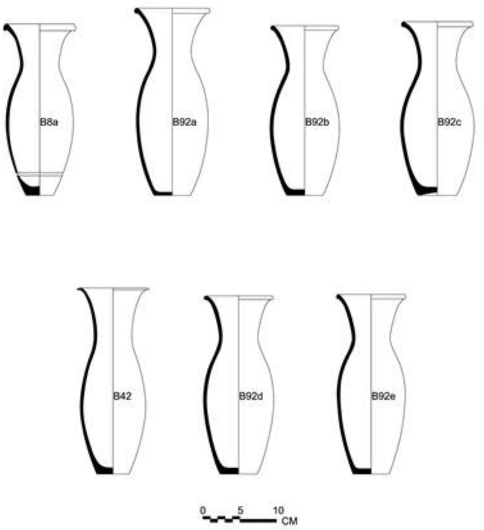


Fig. 5.281: Jars of the category J2 type, Sanauli

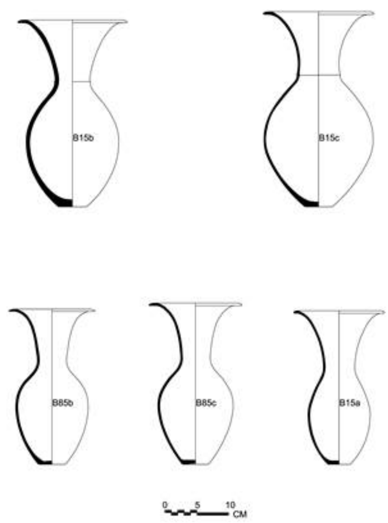


Fig. 5.282: Jars of the category J5 type, Sanauli

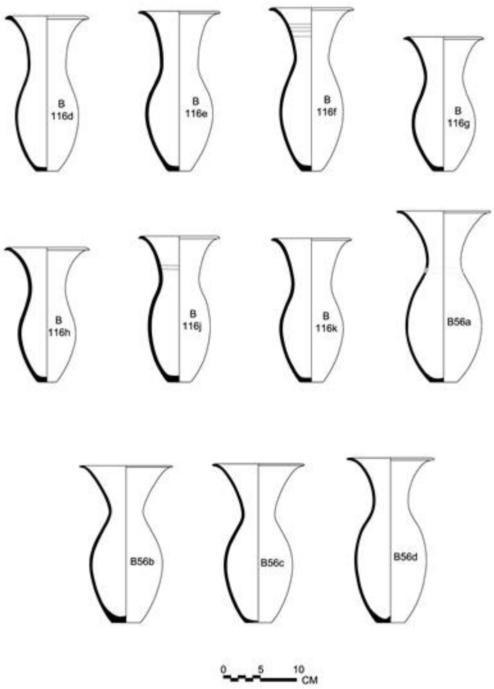


Fig. 5.283: Jars of the category J4 type, Sanauli

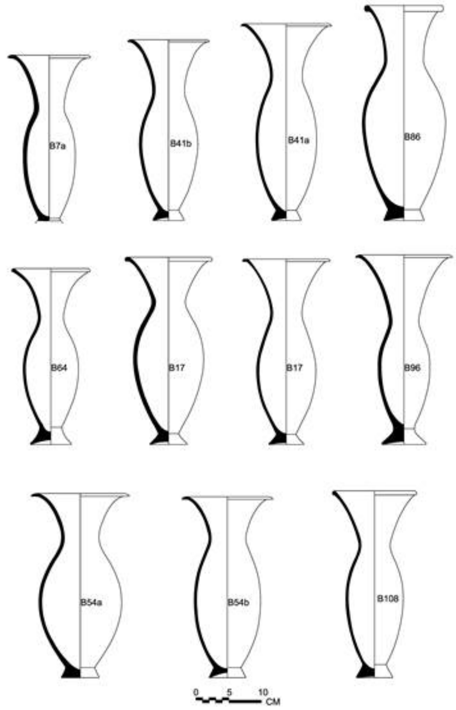


Fig. 5.284: Jars of the category J6 type, Sanauli

Some of the specimen show the manufacture using coil technique and finished on a wheel. Otherwise, a majority of the vases are of wheel made. Based on the body shape, the jars are sub-divided into the following types:

J1 Jars with slightly roundish body shape, both with short and long necked varieties and rim diameter less than internal body diameter; flat based.

J2 Jars with flat based, body more or less elliptical and tends to reach straight sided, high necked and rim diameter nearly equal to internal body diameter.

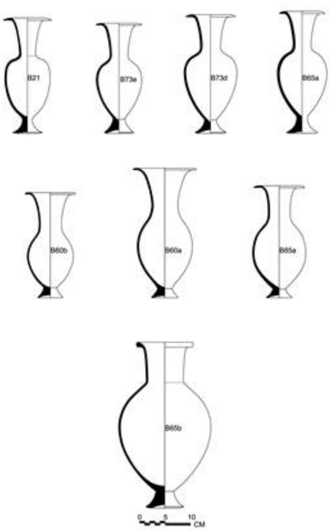


Fig. 5.285: Jars of the category J7 type, Sanauli

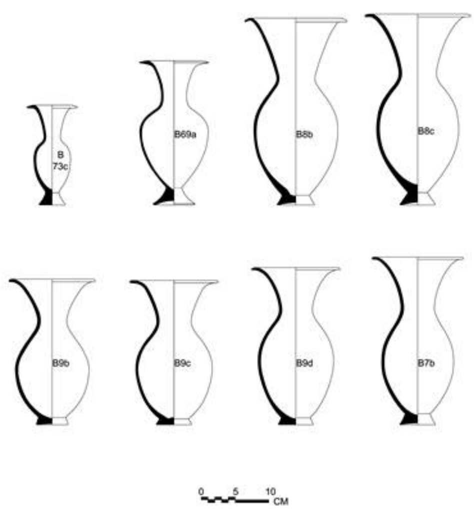


Fig. 5.286: Jars of the category J8 type, Sanauli

J3 Jars with a slightly conical shape, the bottom portion narrower than shoulder one; high necked and rim diameter less than internal body diameter; flat based.

J4 Jars with flat based, body slightly elongated roundish to elliptical, high necked and rim diameter larger than internal body diameter.

J5 Jars with flat based, body bulbous with the central portion larger than the shoulder and base, high-necked, highly flaring out rim with its diameter larger than internal body diameter.

J6 Jars with non-contiguous disc based ones; body shape similar to sub-type J2; high necked and rim diameter larger than internal body diameter.

J7 Jars with non-contiguous internally hollow triangular based ones; body shape similar to sub-type J3, high necked and rim diameter less than internal body diameter.

J8 Jar with non-continuous disc and hollow triangular based ones; body shape similar to sub-type J5; high necked and highly flaring out rims with wide to very wide mouths; rim diameter more or less equal to internal body diameter.

J9 Jars with large body shape, more bulbous and roundish than other jar types; non-contiguous disc based; high necked, with also a ledge all along the shoulder portion; flaring out rims with their diameter less than internal body diameter.

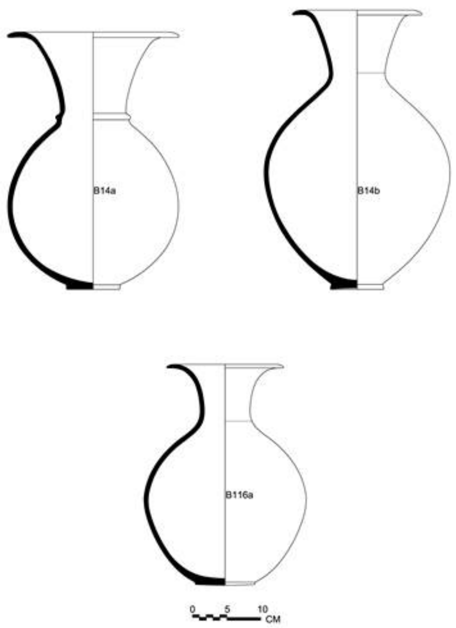


Fig. 5.287: Bowls of the category J9 type, Sanauli

It is observed that tall and slender jars are an essential item in the burial pottery repertoire starting from the Mature Harappan period onwards. As mentioned elsewhere, the typology of burial pottery might have been standardised which is

reflected by the general pattern of pottery types in the burials. The jars from Sanauli as mentioned above exhibit at least nine major types, each distinct from each other. However, it is also observed that any evolutionary pattern is difficult to arrive at in the absence of proper stratigraphic considerations. This is attested to the fact that multiple jar types are often found in a single burial, as it is in the case with Burial 14 and 15.

The jar typology also indicates a continuity from the Mature Harappan period as it can be clearly seen from the examples of Harappa, Kalibangan, Rakhigarhi, Farmana, etc. Only the form and shape changes during the Late Harappan burials of Sanauli and otherwise the purpose of placing these vessels seems to be the same. It is also pertinent to mention here that the jar rim forms have parallels from Hulas, another prominent site in the Yamuna – Hindon *doab*.

(viii) Large Jars

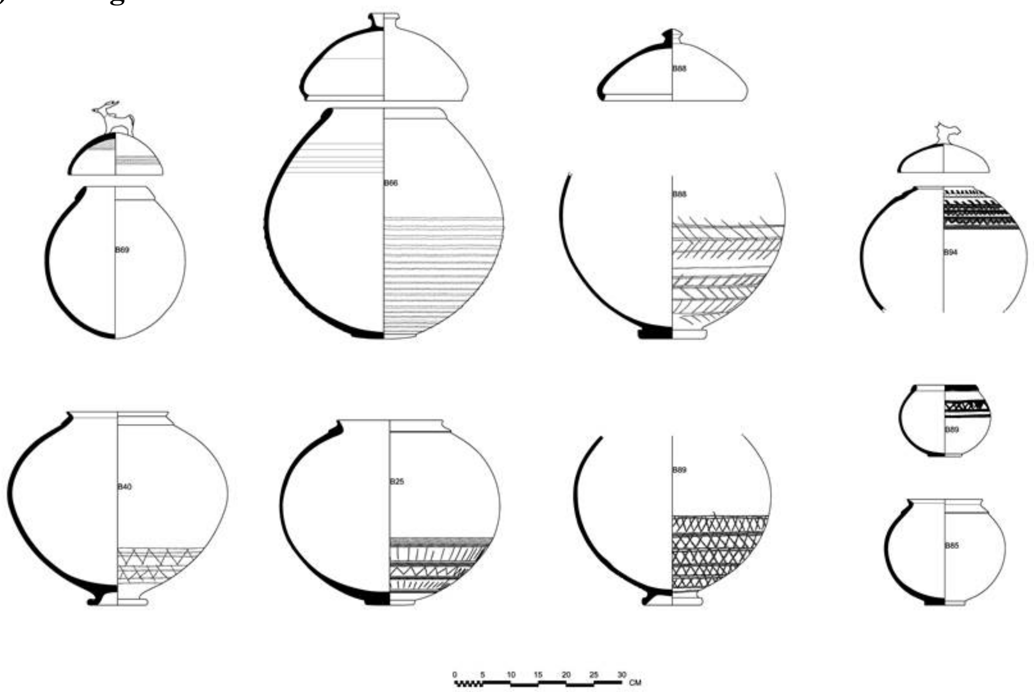


Fig. 5.288: Large jar types, Sanauli

The pottery forms classified as large jars are exceptionally large in size than the other jar types and only nine specimens were found from the Sanauli burials. Out of the nine specimens, two are comparatively smaller, while the other seven specimens are larger with a minimum internal height of around 61 cm, while the maximum height of jar is 81 cm, which is from Burial 66. Among the seven larger jar types, four have been found with lids, two of them having a bull figurine as the handle, one each from Burials 69 and 94.

The third specimen has a flat-based handle and the fourth one with a knobbed handle. Five of the larger jars have distinct low relief incised decorative patterns below the middle portion to the bottom, while the sixth one from Burial 94 has horizontal and wavy decorations, again in low relief incised pattern executed on the shoulder portion and above. The smallest of the jar types of this category, from Burial 89 has black colour painted motifs executed on the shoulder portion, which consists of horizontal bands filled with cross-hatchings.

The pottery types of this category are shown in Fig. 5.288. The jars with lids consisting of flat based and knobbed varieties may be comparable to a certain extent only with the similar jars from Cemetery H, Harappa, with the exception that the latter have no low relief decorative patterns. The Sanauli examples were also not meant to contain the secondary burial interments, as they have yielded none such finds. The large jar types are also in the general pottery typology of mature Harappan period from several sites like Harappa, Kalibangan, Farmana, etc.

(ix) Trough

Only one specimen of pottery form categorised as trough is from the Sanauli cemetery. The specimen is from the Burial 66, with an internal height of 83 cm and internal rim diameter of 100 cm. The trough is found along with one of the large jars mentioned above with a flat-based handled lid. The trough is decorated with low relief incised decorative patterns of horizontal lines with a band of cross-hatchings and wavy pattern at the centre of the horizontal bands. The specimen is shown in Fig. 5.288.

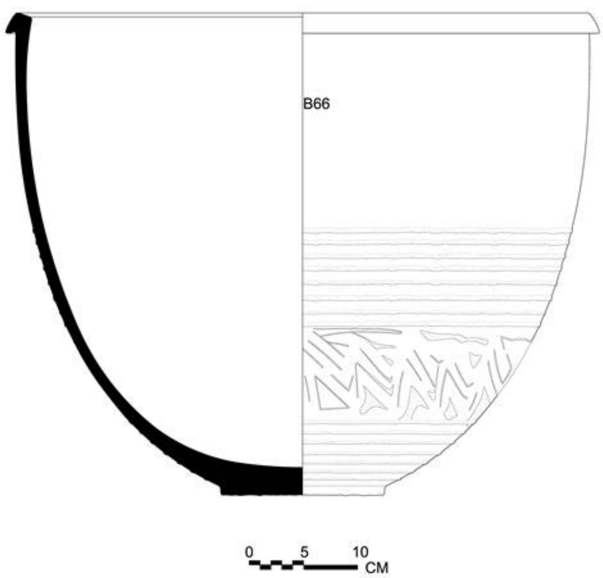


Fig. 5.289: Trough from Burial 66, Sanauli

(x) Lids

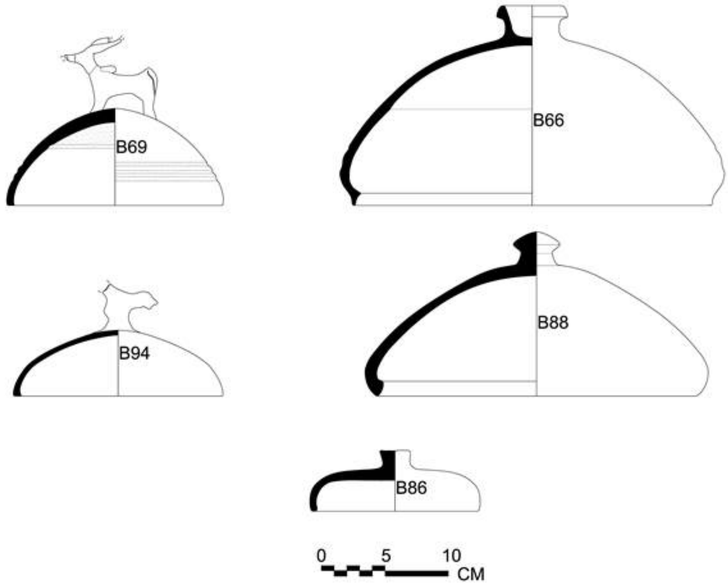


Fig. 5.290: Lid types, Sanauli

Five specimens of lids were found from the excavation at Sanauli. Two of them have bull figurine as handles (Burials 69 and 94), while two are with a flat based handle (Burials 66, 86) and the last one with a knobbed handle (Burial 88). All the lids are found in association with large jars except the one from Burial 86, which is found in association with a bowl. The lids types are shown in Fig. 290. It is also interesting to note that the lid from Burial 86 can be comparable with the lid type XXXIXa from Cemetery R37.

5.5.4.2 Ornaments and Jewellery

Ornaments and jewellery constitute another important aspect of the burial furniture / goods of the Sanauli burials. The ornaments either may be the personal jewellery of the interred individual or specially donated while burying the dead keeping in view of the status of the individual.

In either case, the ornaments form an important class indicator for the social status of the person interred in the burials. The Sanauli burials have brought to light a large number of beads made from raw materials like agate, steatite, limestone, sandstone, basalt, and refractory materials like faience, the technology of which became pre-dominant during the late phase of Mature Harappan and Late Harappan periods.

Beads

The settled life of humans on the onset of Holocene Age and the subsequent food production stages led to a surplus in the food products, which facilitated support

of arts and crafts. This is reflected in a divergent variety of artifacts of various sorts that were purely decorative and aesthetical and not of any functional value.

They also reflect the social status of the owner and often the archaeological record brings to light a large number of such artifacts like terracotta figurines, jewellery (beads, bangles, pendants, amulets, etc.). Humans principally wore jewellery to decorate themselves and through the passage of time since its introduction, it grew from simple to complex, fashioned on local to materials procured from faraway places. Based on the simplicity or complex nature of the ornaments combined with the nature of raw material, time consumed for final production of ornament, the ornaments or ornament styles can be ranked and differentiated based on raw materials and technology.[150]

Beads occupy an important position in antiquity record. In the Indian sub-continent, beads of turquoise, steatite, shell, dentalium, calcite, lapis lazuli are noticed as early from the Neolithic levels of Mehrgarh (7^{th} – 4^{th} millennium BCE).[151] The presence of turquoise beads from the Neolithic levels is a clear evidence of long distance contacts, as turquoise had to be procured from either Iran or Central Asia, nearly 1500 km from Mehrgarh.[152] Similar is the case with other materials like steatite and shell, which have to be procured from sources that are located far away from Mehrgarh.

The Chalcolithic levels at Mehrgarh show further sophistication and new materials appear which include carnelian, calcite, garnet beads in addition to turquoise and other ones. Also, found were used and unfinished drills of pthanite among the debitage of semi-precious stones like chalcedony, agate, carnelian and turquoise.[153] However, Kenoyer suggests that the term pthanite should be discarded, as it is not an officially recognised scientific term.[154] The evidence from Mehrgarh indicates a diversity of materials used for making beads.

Through the course of transition from Neolithic to the Indus levels, more and more harder stones were introduced, while the length of the beads also increased.[155] The mineral used for one of the drills is also identified as pumpelleyite. Among the other Neolithic and Chalcolithic sites where beads are noticed are Mahagara in the Belan valley which yielded terracotta beads from the Neolithic levels.

The Chalcolithic levels of the numerous sites in the Indus plains saw a gradual increase in the quantity as well as diversification of raw materials for making beads. This culminated in the succeeding Harappan period with an explosion in the

bead industry. The Harappans were technologically much advanced in the raw material procurement, production and distribution of various kinds of beads. The Harappans exploited a wide variety of semi-precious stones for bead manufacturing.

A recent study by Law[156] from Harappa indicates that, during Mature Harappan phase, nearly 40 different[a] kinds of rocks and the Harappans from different geographic zones exploited minerals. It has also been identified that out of these, only 11 varieties were present in the preceding Early Harappan and Hakri-Ravi phase of the Harappa Culture at Harappa.[157] Gujarat, being close to the agate raw material sources has large number of sites, which have evidence for beads manufacturing. The example of a bead-manufacturing furnace from Lothal is a classic example in this regard.

The modern bead manufacturing tradition at Khambhat, Gujarat is another example on the continuity in traditional techniques even though the present day manufacturers have adopted modern technologies. Various scholars like S.R. Rao,[158] G. Possehl[159] and J.M. Kenoyer,[156] M. Vidale[156] & K.K. Bhan[160] have studied the modern bead making at Khambhat. They discussed the processes involved right from the raw material procurement to the final polishing of the beads.

Bead Documentation Methodology

In order to analyse the beads from the Sanauli burials, they were documented through a coding system. The coding system developed by Kenoyer (personal communication) was used for the documentation with minor modifications and alterations as the system was developed for mature Harappan bead types.

The bead types and varieties noticed at Sanauli necessitated slight modifications in the methodology and hence new varieties and coding were added for better documentation. The documentation consisted of recording the following parameters:

(i) Bead Type (based on shape and morphology)

(ii) Raw Material

(iii) State (whether complete, broken / partially preserved)

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[a] Almandine Garnet, Basalt, Calcite, Cerussite, Chalcocite, Dolerite, Ernestite (aluminium silicate and mullite-cristobalite), Fluorite, Fossils, Gabbro, Galena-Antimony*, Gneiss, Goethite, Gold, Granite, Gypsum (var. alabaster, selenite), Hematite*, Lapis Lazuli*, Limestone*, Malachite, Massicot Litharge, Microcline* (var. amazonite), Microcrystalline silicates* (var. agate, chert, jasper), Prehnite, Quartz crystals, Quartzite*, Rhyolite, Rock Crystal, Sandstone*, Schist*, Serpentine (var. lizardite), Siltstone, Slate*, Steatite*, Sulfur, Tourmaline, Tremolite, Turquoise, Vesuvianite-Grossular, Wulfenite. (*) *marked varieties were noticed both in early and mature Harappan periods at Harappa*

(iv) Condition (state of preservation)

(v) Exterior Surface (nature of exterior surface)

(vi) Maximum and Minimum lengths (two sets of readings)

(vii) Maximum and Minimum Widths (two sets of readings)

(viii) Interior Perforation Diameter

(ix) Exterior Perforation Diameter

(x) Bead Surface Design

(xi) Drill Section

(i) Bead Type (based on shape and morphology)

A coding system has been developed to record the bead type based on the surface morphology, shape and other characteristics. The longer and shorter beads were defined based on the principle that for long beads, width / diameter is ≤ than the length and for short beads, the width / diameter is ≥ than the length.

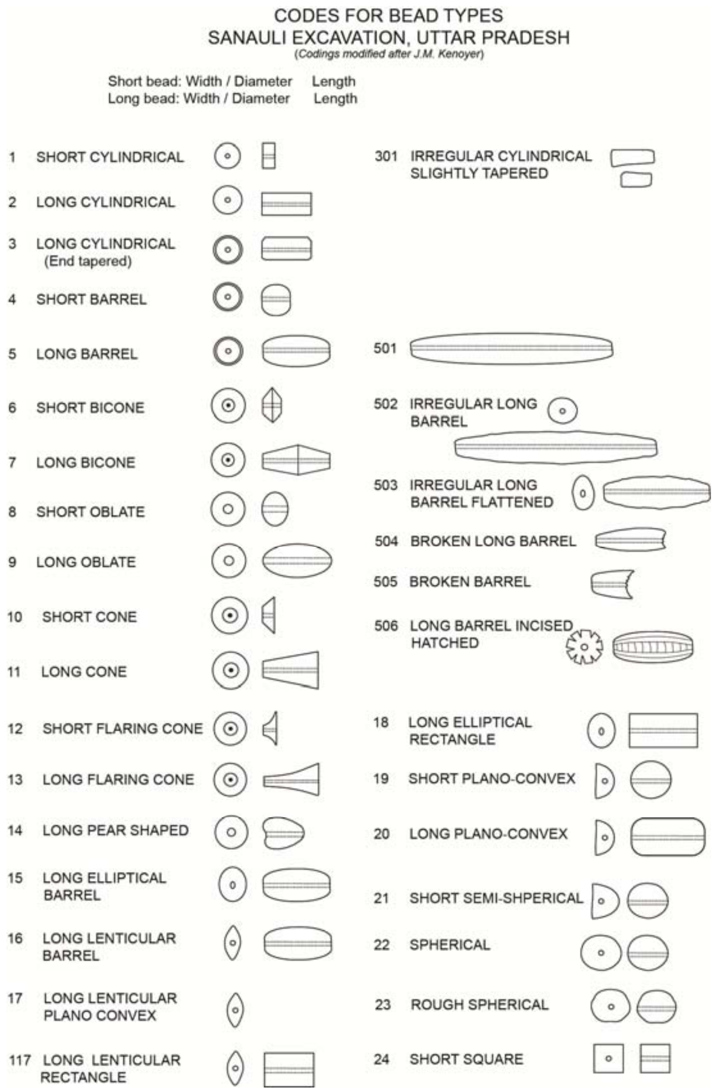


Fig. 5.291: Codes for Bead Types, Sanauli

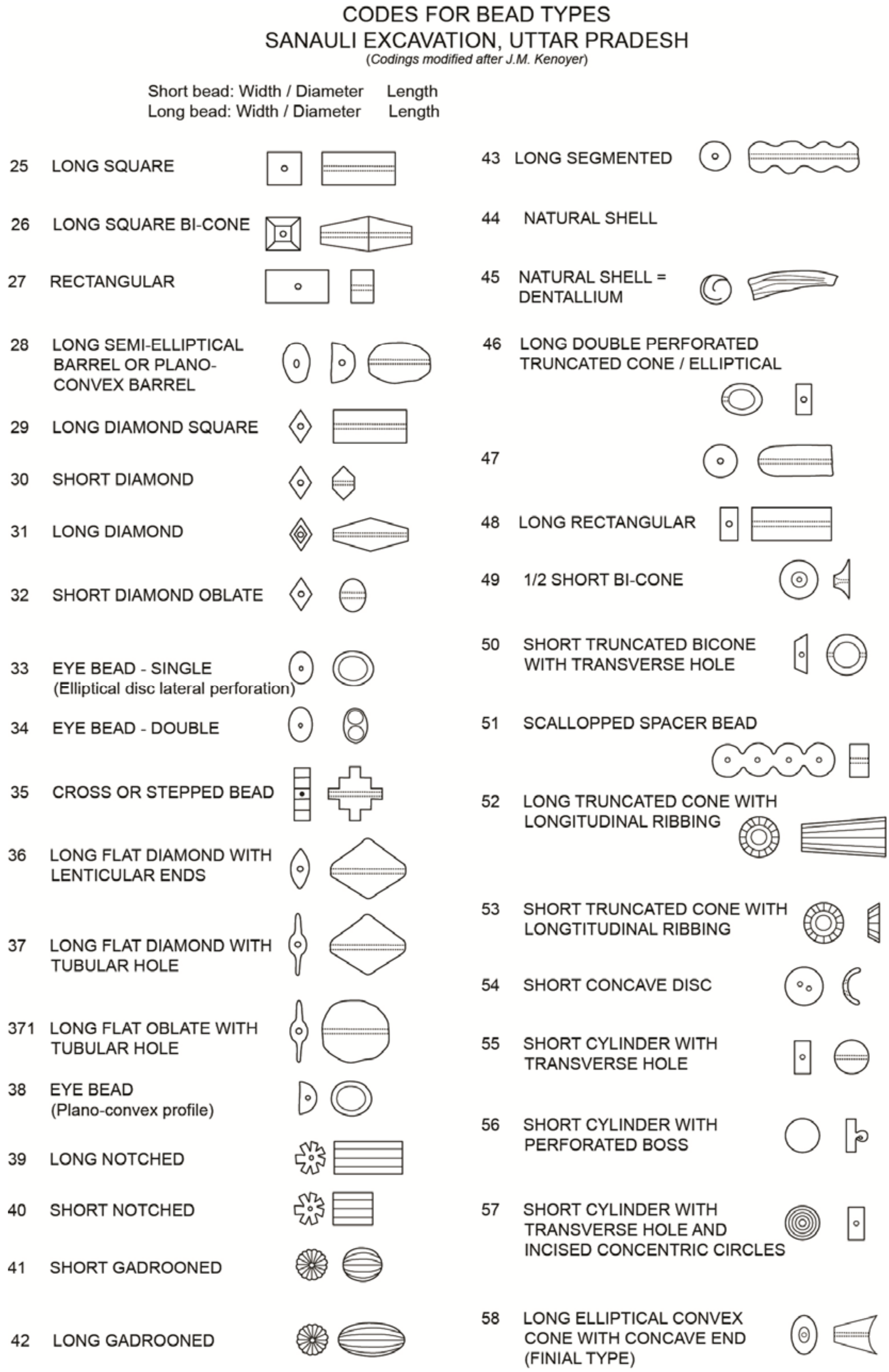


Fig. 5.292: Codes for Bead Types, Sanauli

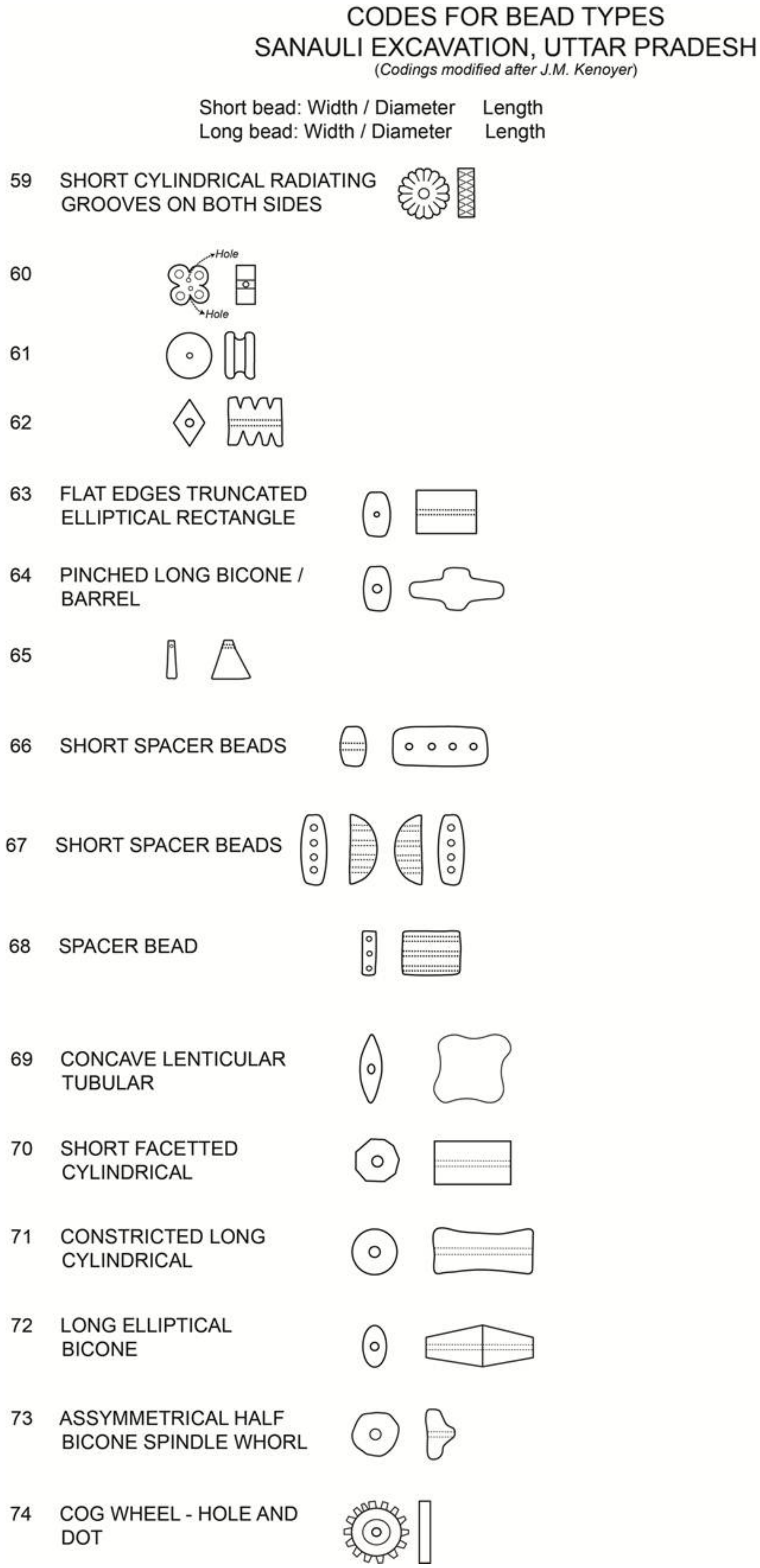


Fig. 5.293: Codes for Bead Types, Sanauli

The various shapes identified are based on the geometrical patterns and looking into the section of the beads. The coding system thus includes shape in both longitudinal as well as elevation portion of the beads. The basic shapes include

cylindrical, barrel, bicone, etc., and there are sub-varieties. The coding system developed for recording the beads is given at Figs. 5.290, 5.291, and 5.292.

(ii) Raw Material

The raw material from which the beads were fashioned is also taken into account for documentation and the coding system was developed including the various sub-varieties within the broader raw material system. Thus, the various sub-varieties of agate have been identified and classified depending upon the surface morphology and decorative patterns, which indicates its formation processes also. This micro study may ultimately lead to identification of patterns from among the other Harappan sites, as a particular variety might be popular in certain times and ages. The raw material codes are given below:

SANAULI RAW MATERIAL CODE
(after J.M. Kenoyer)

1	TERRACOTTA
100	Unfired T/C - clay
102	BURNED T/C
103	VEG TEMPERED T/C
104	GROG TEMPERED T/C
105	VEG AND GROG TEMP T/C
2	VERY DENSE T/C (almost stoneware)
3	STONEWARE - black-grey
4	STONEWARE - red
5	STONEWARE - mottled red-black
6	STONEWARE - Brown
7	PASTE - yellow
8	PASTE - white
9	BASALT
10	FAIENCE - blue
101	FAIENCE - blue green
102	FAIENCE - yellow
103	FAIENCE - white
104	FAIENCE - brown
105	FAIENCE - variegated reddish purple
106	FAIENCE - blackened
107	FAIENCE - variegated black and white
108	FAIENCE - dark blue
109	FAIENCE - grey - white
110	FAIENCE - grey - black
111	FAIENCE - red / red-brown
112	FAIENCE - red and white
113	FAIENCE - blue green and white
114	FAIENCE - brown and white
115	FAIENCE - blue green - black
116	FAIENCE - variegated, white, black, brown, green
20	STEATITE - grey white to blue grey (unfired)

201 STEATITE - black to grey black (unfired)
202 STEATITE - white fired
203 STEATITE - brown to tan (unfired)
204 STEATITE - reddish (unfired)
205 STEATITE - yellowish white (unfired)
206 STEATITE - olive grey to black mottled (unfired)
207 STEATITE - black with tan brown inclusions
208 STEATITE - yellowish green (unfired)
209 STEATITE - glazed blue green
210 STEATITE - glazed white and black
211 STEATITE - glazed white and blue green
212 STEATITE - glazed white

213 CHERT - not determinable
214 CHERT - opaque grey-banded-mottled
215 CHERT - light grey agate-like with fossils
216 CHERT - translucent grey
217 CHERT - tan brown opaque mottled
218 CHERT - tan brown translucent
219 CHERT - tan brown banded
220 CHERT - Pr-brown opaque
221 CHERT - grey tan - mottled
222 CHERT - grey-black
223 CHERT - purple-brown-grey (coarse grain)
224 CHERT - banded - range of colors
225 CHERT - banded red brown/white/green/tan
226 CHERT - banded grey, brown/white-yellow
227 CHERT - banded brown/tan
228 CHERT - banded grey/dark grey
229 CHERT - purple to tan with red specks
230 CHERT / JASPER - banded pink, tan, brown
231 BANDED -CHERT - JASPER
232 Dark Grey Coarse Grain Chert
233 Red Chert /Jasper (Razmak- Bannu, Drakhundheri)
234 CHERT/JASPER - red with white quartz
235 CHERT/JASPER - red brown

30 JASPER - variegated-brown, yellow, red
301 JASPER - yellow
302 JASPER - orbicular, red brown white
303 JASPER - orbicular grey tan
304 JASPER - red brown orange white
305 JASPER - fine banded tan, grey brown
306 JASPER - yellow with agate banded white red orange
307 JASPER - variegated-green
308 JASPER - green with red dots, bloodstone
309 JASPER - variegated-red or red purple
310 JASPER - red and grey
311 JASPER - banded, red white grey
312 JASPER - red brown with dark brown crystals
313 JASPER - dark red brown with grading into sandstone
314 JASPER - red to red purple with grey dots
315 JASPER - purple-pink

40 AGATE - banded
401 AGATE - banded yellow brown/white
402 AGATE - Grey
403 AGATE - banded grey white

404 AGATE - grey black translucent
405 AGATE - red, orange
406 AGATE - yellow-grey - unheated
407 AGATE - red opaque pink - overheated
408 AGATE - banded yellow orange
409 AGATE - dark red orange - dark grey, white
410 AGATE - pink white
411 AGATE - banded yellow orange white
412 AGATE - Green
413 AGATE - white (banded)
414 AGATE - white clear
415 AGATE - yellowish white opaque matte
416 AGATE - banded white, opaque
417 AGATE - banded yellow/clear white/red orange
418 AGATE - banded red orange
419 AGATE - white with green stain
420 AGATE - chrysophrase
421 AGATE - banded red and white
422 AGATE - black
423 AGATE - red, brown and white opaque
424 AGATE - yellowish white and greyish white banded
425 AGATE - banded yellowish
426 AGATE - yellow to white not banded
427 AGATE - banded white, grey with red
428 AGATE - banded grey white
429 AGATE - brown and white translucent
430 AGATE - moss agate
431 AGATE - black and white - banded
432 AGATE - banded dark red brown / white
433 AGATE - white opaline
434 AGATE - white and red opaline
435 AGATE - black, white and grey banded

50 QUARTZ - white - rock crystal
501 QUARTZ - smoky
502 QUARTZ - yellow
503 QUARTZ - rose
504 QUARTZ - Mari diamond

60 SANDSTONE - brown
601 SANDSTONE - red brown with voids
602 SANDSTONE - red brown mottled
603 SANDSTONE - grey brown
604 SANDSTONE - black
605 SANDSTONE - grey black
606 SANDSTONE - yellow / ochre
607 SANDSTONE - cherty yellow banded
608 SANDSTONE - fossiliferous limestone red/yellow
609 SANDSTONE - fossiliferous yellow brown (Sang-i-Mariam)
610 SANDSTONE - banded Yellow-Brown
611 SANDSTONE - banded grey white
612 SANDSTONE - buff
613 SANDSTONE / SILTSTONE - green and white banded
614 SANDSTONE / SILTSTONE - red brown and white
615 SANDSTONE / SILTSTONE- red brown / green
616 SANDSTONE / SILTSTONE- green
617 LIMESTONE - yellowish white
618 LIMESTONE - banded brown yellow

619	LIMESTONE - cherty yellowish white
620	LIMESTONE - brown, yellow
70	QUARTZITE - white
701	QUARTZITE - white yellow mottled
702	QUARTZITE - pink
703	QUARTZITE - pink, tan, brown
704	QUARTZITE - pink white
705	QUARTZITE - grey blue, green grey
706	QUARTZITE - brown
707	QUARTZITE - tan white
708	QUARTZITE - black
709	QUARTZITE - black, tan, red
710	QUARTZITE - green brown
71	BANDED BLACK STONE with White Quartz veins
711	BANDED BROWN STONE with White Quartz veins
712	Black and white speckled, Diorite, Rhyolite, or Gabbro
72	Green Onyx
73	SHELL - marine
731	SHELL - freshwater
74	IVORY
75	BONE
76	COPPER ALLOY
77	SERPENTINE
78	LAPIS LAZULI
79	SODALITE
80	TURQUOISE
81	AVENTURINE
82	"JADE" - vesuvianite, grossular, garnet
83	ALABASTER/ GYPSUM
84	AMAZONITE
85	FELDSPAR
86	GLASS - red brown
861	GLASS - black and white banded
862	GLASS - white
863	GLASS - black
87	GOLD
88	SILVER
89	Chalcedony
90	Carnelian

(iii) State (whether complete, broken / partially preserved)

This parameter refers to the nature of the preserved bead, whether they are complete, broken, partially broken or one end preserved. Thus, based on the preserved bead, a coding system is developed to classify and analyse them. The various codes for the state are given below:

STATE	1 = COMPLETE
	2 = SLIGHTLY CHIPPED OR BROKEN
	3 = ONE END BROKEN
	4 = BOTH ENDS BROKEN
	5 = FRAGMENT PORTION NOT DETERMINED
	6 = SPLIT LONGITUDINALLY

7 = ONE END ONLY
8 = CENTRAL FRAGMENT

(iv) Condition (state of preservation)

The condition of the bead is the nature and state of preservation condition in which it was originally found from the burials. The condition varies from fresh to slightly rolled to heavily rolled, etc. and to vitrified ones. These conditions were given separate coding in order to record them. The following is the coding given for separate parameters of condition:

CONDITION
1 = FRESH
2 = SLIGHTLY ROLLED-SLIGHTLY CORRODED
3 = HEAVILY ROLLED-HEAVILY CORRODED
4 = BURNED/CRACKED
5 = WHITENED/'CALCIFIED'
6 = GARBAGE STAIN
7 = VITRIFIED

(v) Exterior Surface (nature of exterior surface)

The documentation for exterior surface consists of the nature of the surface visible to the naked eye. There are various stages in which a bead is manufactured right from the raw material, which involves chipping, polishing, decorating, etc. These various stages are represented in the form of codes that are helpful in analysing the nature of beads and its stage of finishing. The following is the coding system for recording the exterior surface of beads from Sanauli:

EXTERIOR SURFACE

1 = NATURAL SURFACE - SHELL / CORTEX	15 = CHIPPED AND SAWN
2 = PARTLY GROUND	16 = CHIPPED AND GROUND
3 = GROUND WITH STRIAE VISIBLE	17 = CHIPPED, SAWN AND GROUND
4 = SMOOTH NO STRIAE	18 = SAW MARKS
5 = SMOOTH ROUNDED (HIGH POLISH) / WORN	19 = GLAZED
6 = INCISED, DESIGN WORN	20 = SLIGHTLY POROUS EVEN
7 = INCISED, DESIGN FRESH	21= SMOOTH NO FINGERPRINTS
8 = INCISED, DESIGN VERY FAINT	22 = SMOOTH WITH FINGERPRINTS
9 = NOT DETERMINABLE AS TO THE PRESENCE OF DESIGN	23 = SLIPPED AND BLEACHED SURFACE
10 = GROUND SMOOTH BUT NATURAL SURFACE IN HOLLOWS, NATURAL SURFACE	24 = SMOOTH WITH FOLDING AND SURFACE HAMMERING LINE
11 = GROUND, SAW MARKS VISIBLE	25 = SAWN AND GROUND (UNFINISHED)
12 = GROUND, SAW MARKS, NATURAL SURFACE	26 = SAWN AND GROUND WITH CORTEX
13 = SAWN FRAGMENT, NATURAL	27 = HAMMERED SURFACE
14 = CHIPPED	28 = SMOOTH WITH TINY PERCUSSION CHIPS

(vi) Maximum and Minimum lengths (two sets of readings)

The maximum and minimum lengths are taken in mm to record the frequency and general preference, if any, to a particular length of beads. The stone

beads are very difficult to manufacture during the Harappan times and it involved the development of a special grade of drill bits made of “ernestite”. Hence, the manufacture of longer beads was extremely difficult, and can be put into the category of a luxury items. The length of beads indicates the rarity and value. Two sets of reading were taken for the length, viz., maximum and minimum, the first reading where the maximum length arrives using a digital vernier calipers and the second reading is taken perpendicular to the first one. Then the average of the two readings is taken in order to analyse the frequencies and histograms.



Fig. 5.294: Coding for Bead Surface Design

(vii) Maximum and Minimum widths (two sets of readings)

The maximum and minimum widths of the bead are taken similar to previous reading. This is carried out in order to arrive at a frequency of thicker and thinner beads, preference to a particular variety of beads, etc. Here also, two sets of readings are taken, the first one at the maximum width of the bead with a digital

vernier calipers and the second one perpendicular to the first one. The average of two readings is taken for final analyses.

(viii) Interior Perforation Diameter

The interior perforation diameter is documented in order to arrive at an idea of thickness of drill bits used in perforation of the beads. As mentioned above, "ernestite" drill bits were developed by the Harappans for drilling longer beads. However, along with ernestite a variety of stones and copper could have been used for drilling. The variations in the interior perforation diameter actually help in arriving in the tip diameter of drill bits.

504 = ANGLED LINES
505 = DOUBLE SLASHES
506 = LONGITUDINAL RIBBING

510 = SEGMENTED FRAGMENT
511 = SEGMENTED - 1
512 = SEGMENTED - 3
513 = SEGMENTED - 5
514 = SEGMENTED - 5

520 = INCISED CONCENTRIC CIRCLES
521 = LONGITUDINAL GROOVES

600 = MOULDED

700 = SLIPPED AND BLEACHED
701 = RED AND WHITE / 3 WHITE BANDS
702 = RED AND WHITE
703 = RED AND WHITE / 2 WHITE BANDS
704 = SINGLE CIRCLE
705 = DOUBLE ELLIPSE / DOUBLE EYE

800 = COLOURED GLASS
801 = RED WITH WHITE CORE

900 = UNFINISHED / NOT DRILLED
901 = UNFINISHED / DRILLED

Fig. 5.295: Coding for Bead Surface Design

(ix) Exterior Perforation Diameter

The exterior perforation diameter is documented at both ends of the bead in order to take two readings. The exterior perforation diameter helps in understanding the mechanism of drilling as it involves wobbling of drill bits during perforation and hence the outside diameter is normally larger than the interior diameter. The average of the two readings is taken for analysis.

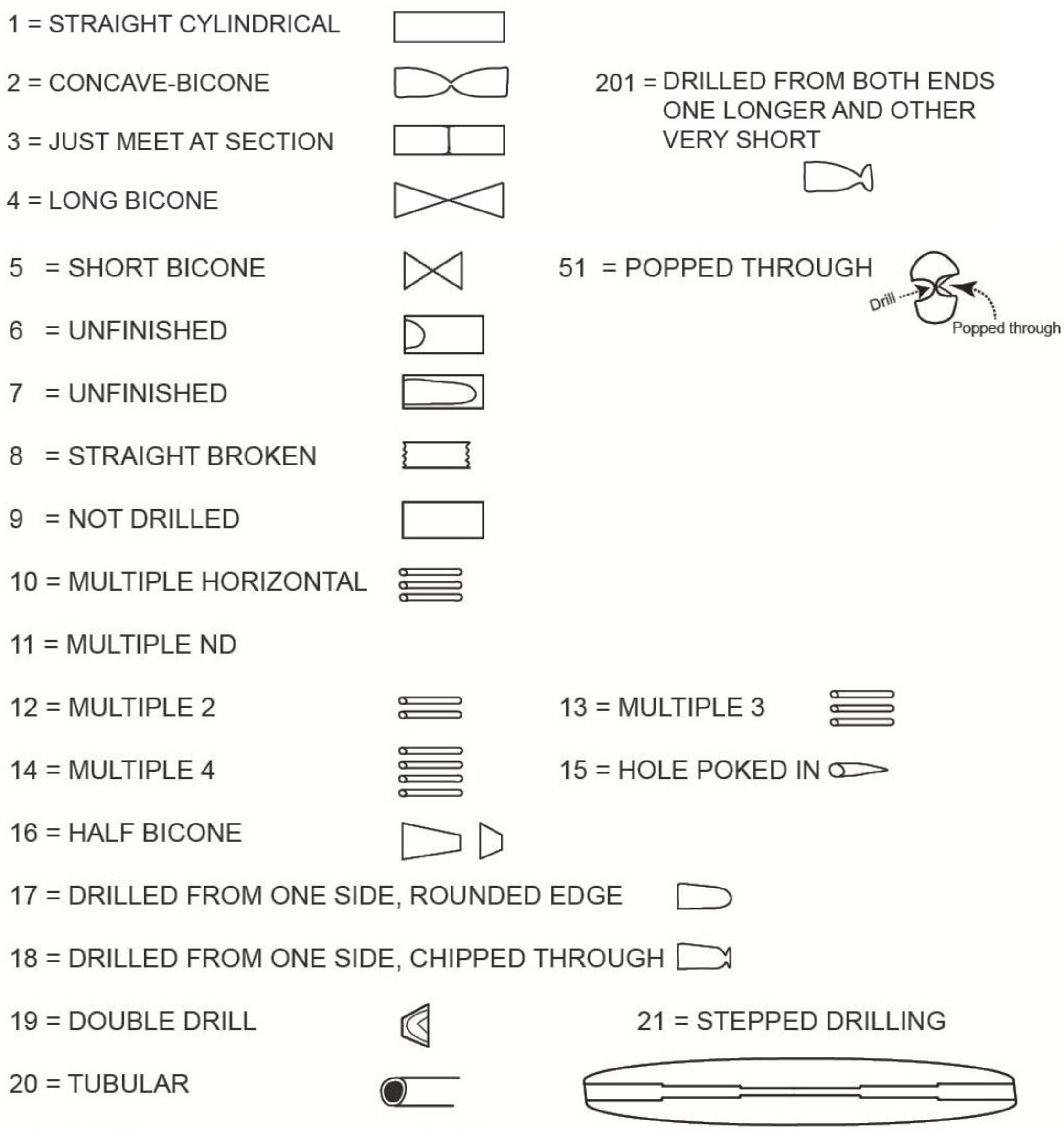


Fig. 5.296: Coding for Drill Section

(x) Bead Surface Design

The bead surface design coding helps in listing and documenting various types of decorations that might have been made on the surface of the beads. The reading helps to analyse and understand any preference to a particular design pattern. The coding system developed for recording the bead surface design is at Fig. 5.294 & 5.295.

(xi) Drill Section

The drill section is the reflection of technology used in drilling the beads. The drill section also depends upon the raw material and drill types used during manufacture of beads. The coding and documentation of drill section helps in

understanding these patterns and manufacturing techniques. The coding system adopted for documenting the drill section is at Fig. 5.296.

Results from the analysis of Sanauli Beads

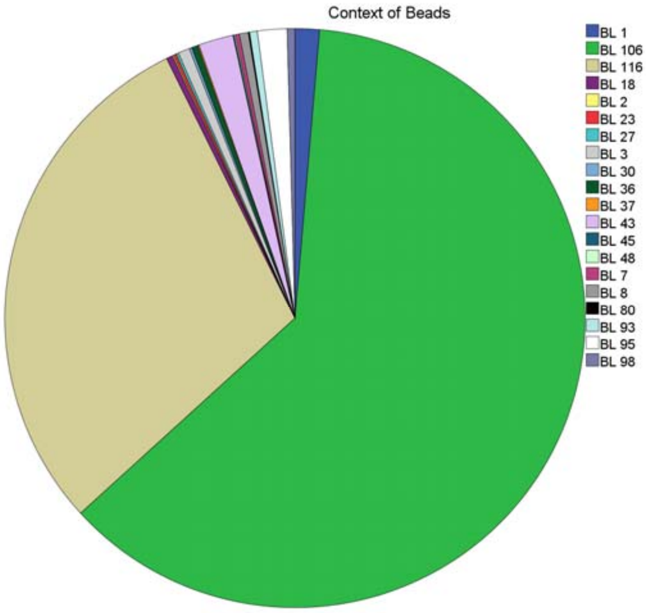


Fig. 5.297: Chart showing the context of beads, Sanauli

The burials from Sanauli yielded a variety of grave goods, of which the beads forms a major component. The Sanauli excavation brought to light a total number of 2193 beads, out of which 1398 are from the burial contexts. This constitutes a 63.75% of the total bead collection. As 46.55% of the burials are either disturbed or altered completely, a considerable portion of the beads, (36.25%) is from secondary context. The Fig. 5.297 shows the context of beads in terms of the burials.

The Burial 106, yielded the largest occurrence of beads, consisting of 865 beads (61.9%) of the above bead collection followed by Burial 116 which yielded 412 beads (29.5%) and Burial 43 (27 beads, 1.9%), Burial 95 (23 beads, 1.6%), Burial 1 (19 beads, 1.4%), Burial 3 (9 beads, 0.6%), Burial 8 (7 beads, 0.5%), Burial 93 & 98 (6 beads, 0.4%), Burials 18 & 36 (5 beads each, 0.4%), Burial 7 (3 beads, 0.2%), Burials 23, 27, 30 (2 beads each, 0.1%) and Burials 2, 37, 45, 48 & 80 (1 bead each, 0.1%). However, the number of beads cannot be directly taken to indicate the social status and hierarchy of the individuals interred in the burials. This is because the largest occurrence of faience beads from Burials 106 and 116 does not indicate the higher status of these burials, as faience is not rare and expensive when

compared to the long barrel agate beads from Burials 95 and 2. However, the above analysis helps in understanding the preference of beads in particular types of burials.

a) Bead Type (based on shape and morphology)

The analysis of the beads based on the shape and morphology was carried out with an available 2181 beads from the burials. The analysis was carried out based on the coding system enumerated at *5.5.4.2 (i)* above. The pie chart based on the analysis is shown in Fig. 5.298. The analysis indicate that the long cylindrical variety of beads dominate with an overall number of 1463 beads (67.1%) followed by short cylindrical (517 beads, 23.7%), long barrel (101 beads, 4.6%), short bicone (26 beads, 1.1%), short barrel (22 beads, 1%), eye beads (11 beads, 0.5%). The other bead varieties that have their presence of less than 10 in number are long lenticular barrel (7 beads, 0.3%), long gadrooned and long barrel incised hatched (6 beads, 0.3%), long elliptical barrel (4 beads, 0.2%), long lenticular rectangle and flat edges truncated elliptical rectangle (3 beads, 0.1%), longer variety of long barrel and broken long barrel (2 beads, 0.1%), followed by other bead varieties which has only one bead representation. The long cylindrical beads are mostly restricted to the faience beads of the blue-green variety, a majority of which were found from Burials 106 and 116, wherein in the case of the latter, these beads were found arranged in the form of a human torso and devoid of any human bones.

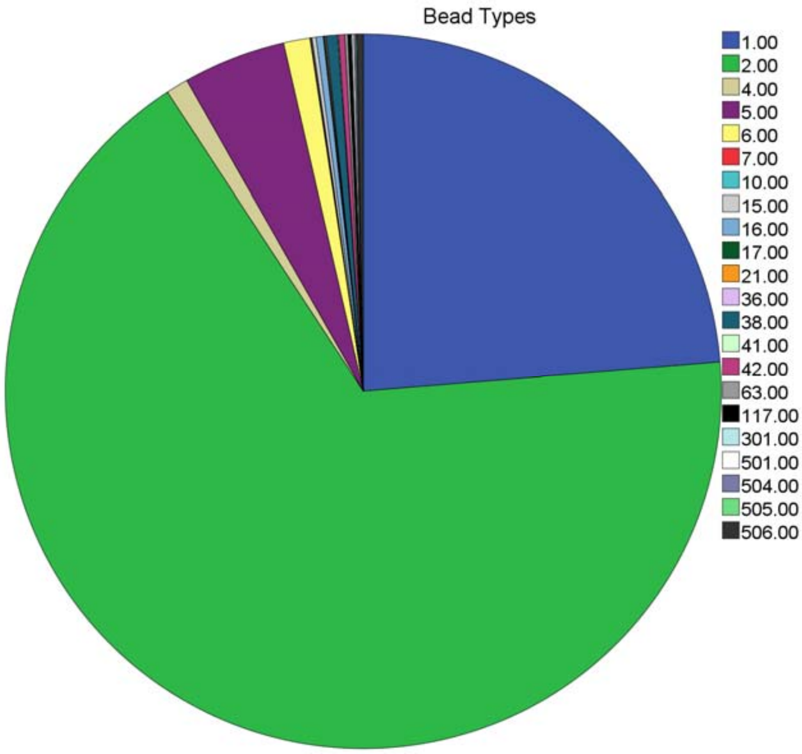


Fig. 5.298: Chart showing the bead types based on shape and morphology

b) Raw Material

The beads from the Sanauli burials are made from a variety of raw materials including different varieties of stones, refractory materials like faience and terracotta. Glass beads have also been reported from the burials, which indicate a probable late date for the burials, as glass beads have not been reported from mature Harappan levels as well as early phases of late Harappan levels from previous excavations. The documentation and recording procedure consist of development of a coding system as enumerated at 5.5.4.2 (ii) mentioned above and various beads were given codes as per the visual identification of raw materials. The broad classification of raw materials is terracotta, faience, steatite, agate, quartzite, limestone and basalt. The pie chart at Fig. 5.299 shows the distribution of broad types of raw materials found from the Sanauli burials. The chart clearly indicates the domination of faience family (1982 beads, 91.3%) raw material types, followed by agate family (102 beads, 4.9%), steatite (22 beads, 1.7%) followed by basalt (31 beads, 1.4%) and terracotta (26 beads, 1.2%).

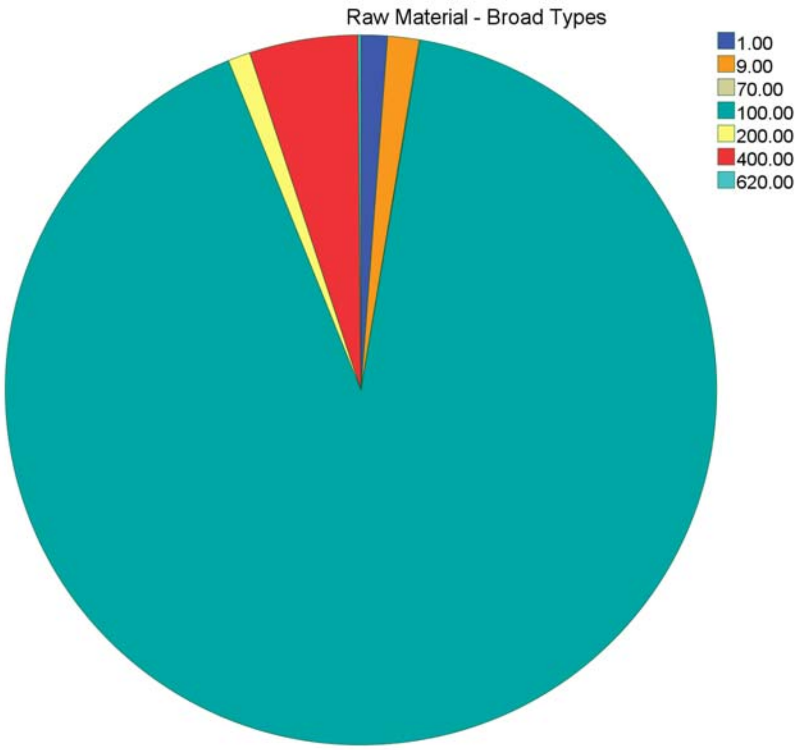


Fig. 5.299: Chart showing the distribution of broad raw material types

The documentation of all raw material types with the sub-varieties noticed in each of them also helped in understanding the distribution of all bead types. The Fig. 5.300 shows the pie chart indicating the percentage wise distribution of beads as

per the raw material types including all the sub-varieties. The dominant raw material types is faience of blue green type (1899 beads, 86.9%), followed by agate (banded black and white) beads (46 in number, 2.1%), basalt (31 beads, 1.4%), faience of grey white type (29 beads, 1.3%) and terracotta (26 beads, 1.2%). The other raw material types represented in the beads are steatite (white) (21 beads, 1%), faience of the blue, green and white type (20 beads, 0.9%), faience of white type (15 beads, 0.7%). The other raw material types represented by the beads are less than ten in number and constitute less than 1% each of the total collection. The pie chart clearly indicates the dominant and less to very less dominant varieties of the raw materials from the collection at Sanauli.

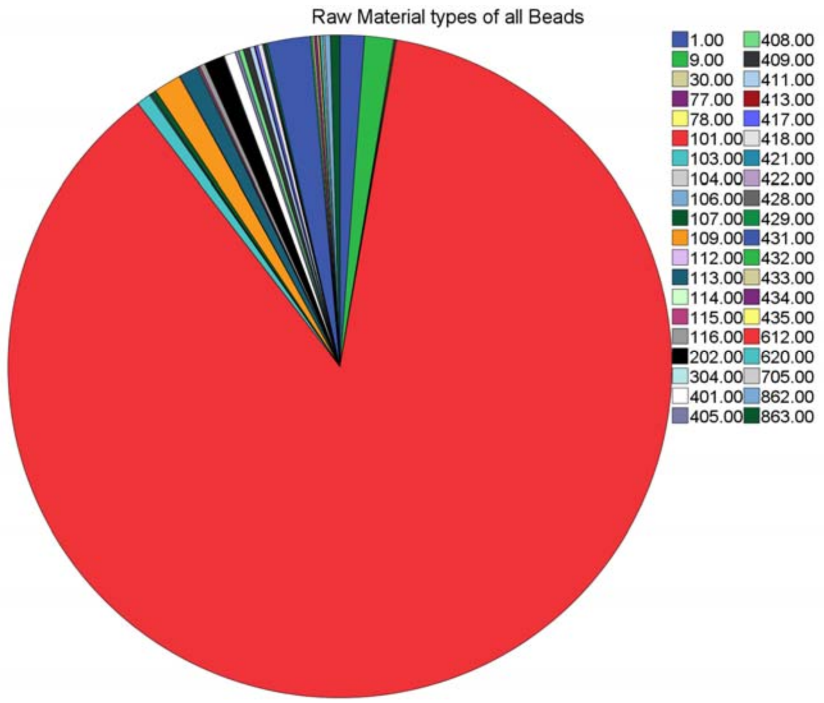
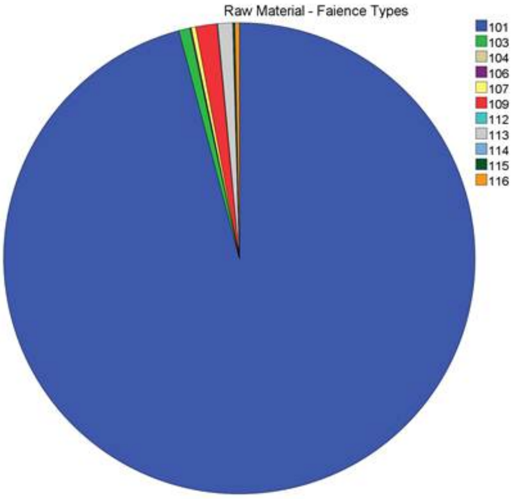


Fig. 5.300: Chart showing the distribution of raw material types of all beads

As the beads of faience and agate raw material types dominate the entire collection, the sub-varieties of each family were also recorded and analysed separately. The Figs. 5.301 and 5.302 show the beads of faience type and agate type raw materials. The analysis of faience type raw materials indicate that a total 1981 faience beads were found from Sanauli burials.

Out of the 1981 faience beads, the most dominant variety is the blue green variety represented by 1899 beads (95.9%) followed by grey-white faience (29 beads, 1.5%), blue, green and white faience (20 beads, 1%), white faience (15 beads, 0.8%), variegated black & white and variegated white, black, brown and green

faience (6 beads, 0.3%), blue green, black faience (2 bead, 0.1%) and brown, blackened, red & white and brown & white faience (1 bead each, 0.1%).



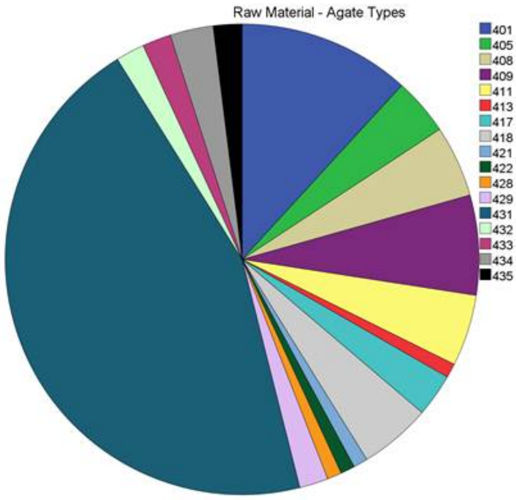


Fig. 5.301: Faience type beads chart; Fig. 5.302: Agate type beads chart

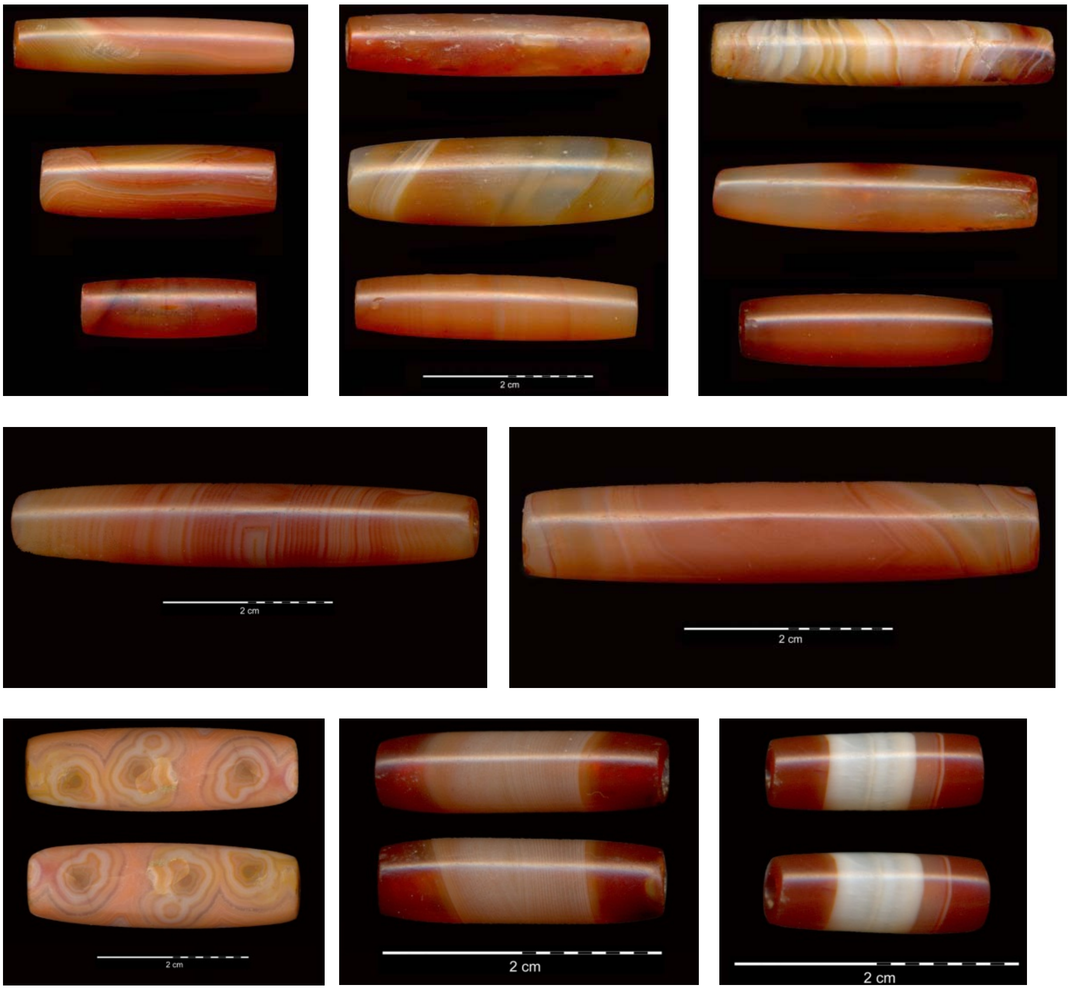


Fig. 5.303: Examples of agate beads, Sanauli

As mentioned elsewhere, the blue green faience variety dominates the faience raw material collection.



Fig. 5.304: Examples of agate beads, Sanauli

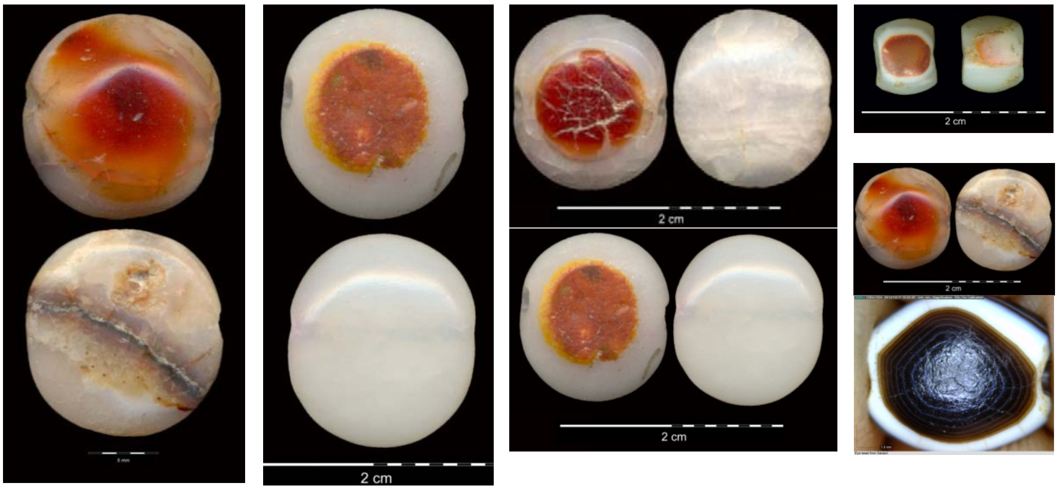
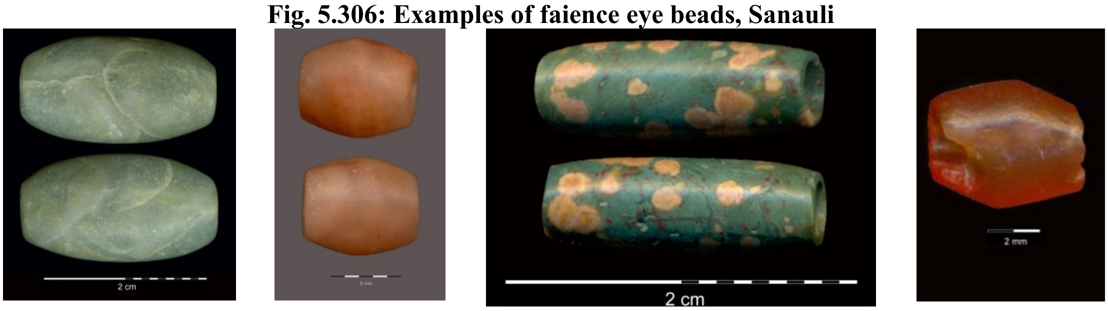


Fig. 5.305: Examples of agate eye beads, Sanauli

The total number of beads identified to belong to the agate family is 102 beads. The pie chart emanating from the analysis of the beads of agate family is at Fig. 5.302. The analysis indicated that the banded black & white agate type dominates the collection with a representation of 46 beads (45.1%) followed by other major varieties like banded yellow brown / white (12 beads, 11.8%), dark red orange / dark grey white (7 beads, 6.9%), five beads each of banded yellow orange, banded yellow orange white and banded red orange (4.9%) followed by other minor varieties.



Fig. 5.306: Examples of faience eye beads, Sanauli

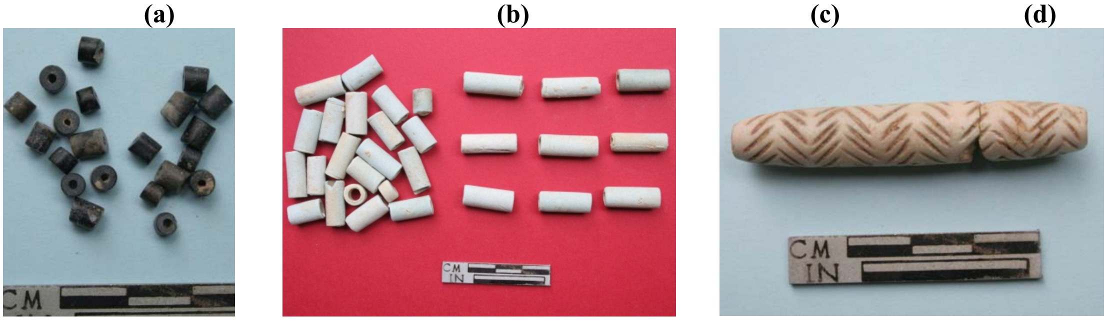


(a) (b) (c) (d)

Fig. 5.307: Examples of (a) limestone, (b) & (d) agate (carnelian) and (c) serpentine beads



(a) (b) (c) (d)



(e) (f) (g)

Fig. 5.308: Examples of (a) – (c) limestone; (d) sandstone; (e) basalt; (f) & (g) faience beads, Sanauli

The long barrel beads of red orange and yellow orange varieties remind of the mature Harappan types. However, as it would be observed in 5.5.4.2, the detailed scientific investigations on the drilling technology reveal that the Sanauli ones are different in terms of technology and typology. A considerable quantity of agate beads are found from the collection of jewellery, constituting 4.9% of the total collection. Randall Law has extensively studied the exploitation of stones of the agate family as a raw material, its acquisition and distribution for exploitation in different areas of the Indus territory.[161] The various agate sources as well as raw materials and in some cases finished products from sites like Harappa, Mohenjo-daro, Chanhu-daro, Mehrgarh, Nausharo, Dholavira, Nagwada and Rakhgarhi were

studied by Law and using instrumentation technique like Induced Neutron Activation Analysis (INAA) for correlation.[162]

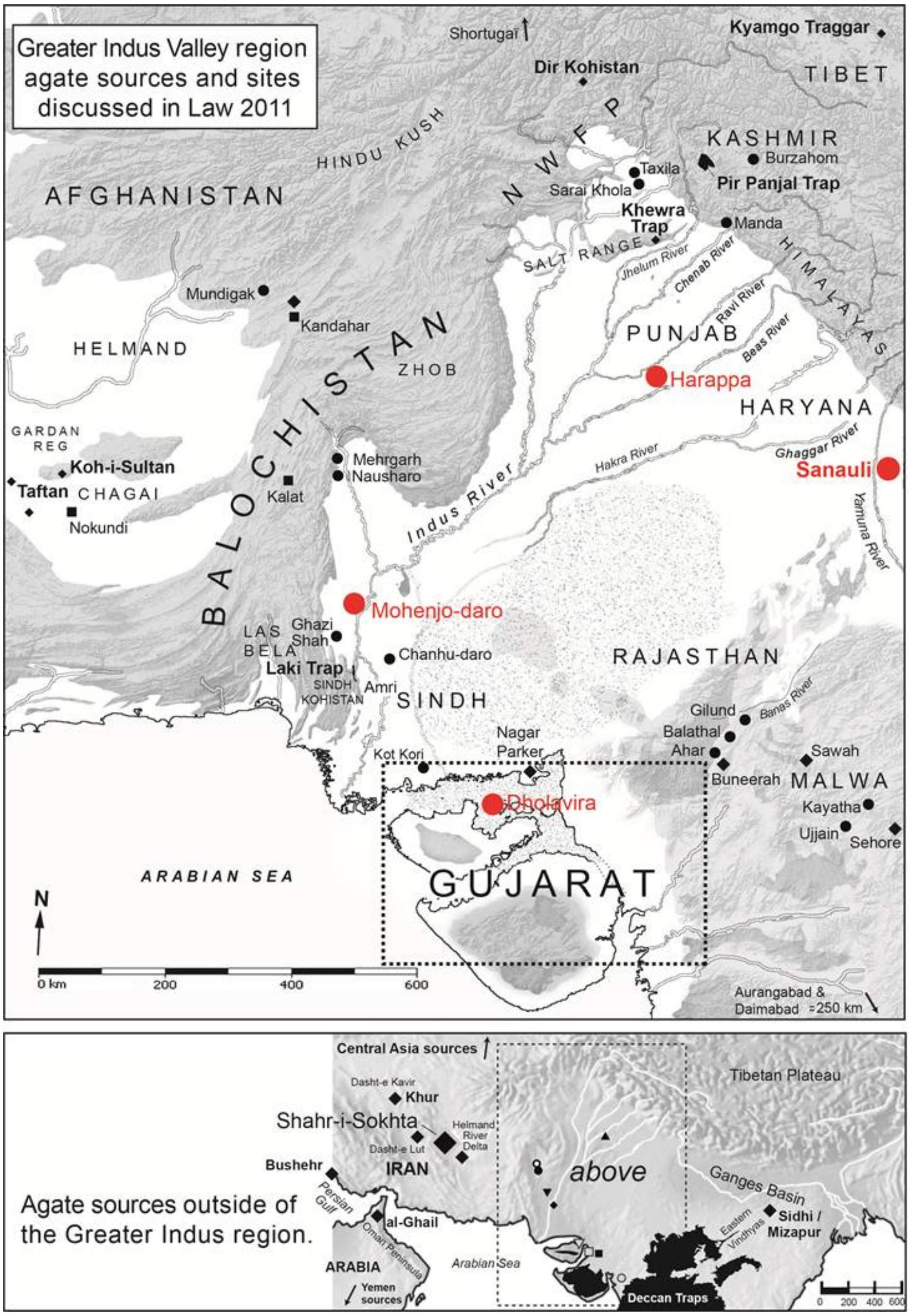


Fig. 5.309: Location of agate sources in Indus valley

The raw material sources from sites from which the samples analysed by Law are Ratanpur area (also known as Rajpipla deposits / mines) in southeastern Gujarat; Khandek, Eastern Kachchh; Mardak Bet, Little Rann of Kachchh, etc.[163] Law, also analysed samples from Iranian raw material sources. Law observes that a very good discrimination could be possible between the Gujarat and eastern Iranian sources.[164]

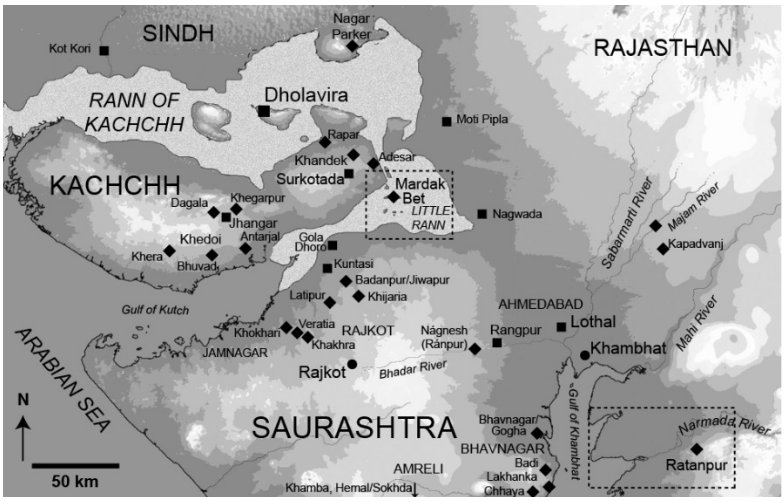


Fig 5.310: Agate sources (♦ ○□) and archaeological sites (■) and modern towns (●) in Gujarat (*after fig. 8.4 of Law, R.W., 2011)*

It has been concluded by Law that majority of the samples analysed have their origin in Gujarat sources while evidence for other sources from eastern Iran are also present.[165] Law also concludes that even the results from the analysis of agate artefacts from Rakhigarhi "…..very consistent with the agate acquisition patterns revealed *(Gujatat was evidently the primary agate source….).*[166]

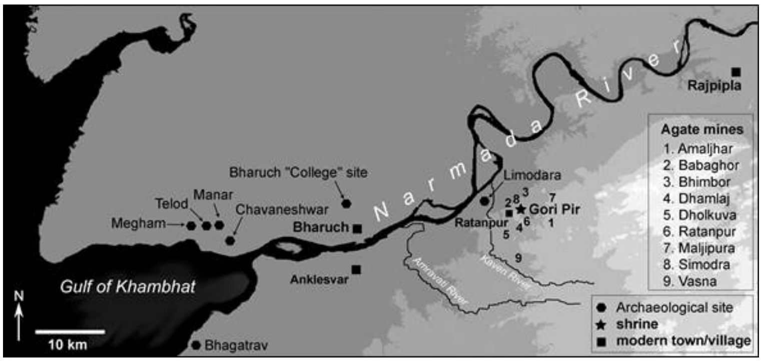


Fig. 5.311: Ratanpur area agate sources *(after Fig. 8.6 of Law, R.W., 2011)*

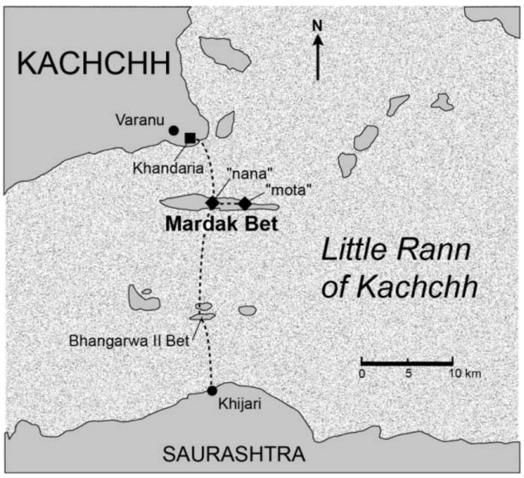


Fig. 5.312: Mardek Bet in the Little Rann of Kachchh *(after Fig. 8.8A of Law, R.W., 2011)*

The origin of agate artefacts from Rakhigarhi to Gujarat sources as revealed from the studies of Law indicates the long distance acquisition and trade networks even to inland centres such as Rakhigarhi.[167] This may be the picture for even further inland sites like Sanauli, Mandi, Alamgirpur, Hulas, etc., which

are locate in the Yamuna – Hindon *doab* as there are no other raw material sources located nearby, except the equally distant Vindhyan sources. The Vindhyan sources are yet to be studied in terms of raw material acquisition and distribution, which may throw further light on the true picture in the future. However, with the present available evidences, the possibility of the Sanaulians acquiring the agate raw materials / finished agate beads, which had its origin from the Gujarat, cannot be ruled out.

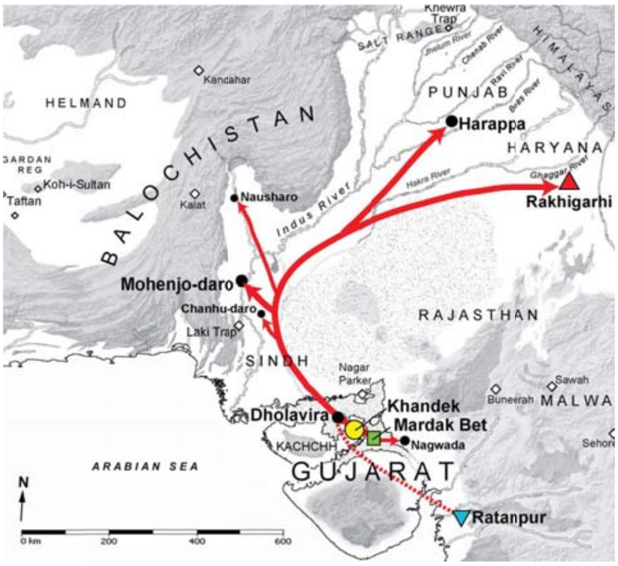


Fig. 5.313: Agate sources and exploitation as revealed from Rakhigarhi samples (*after Law, R.W., 2011*)

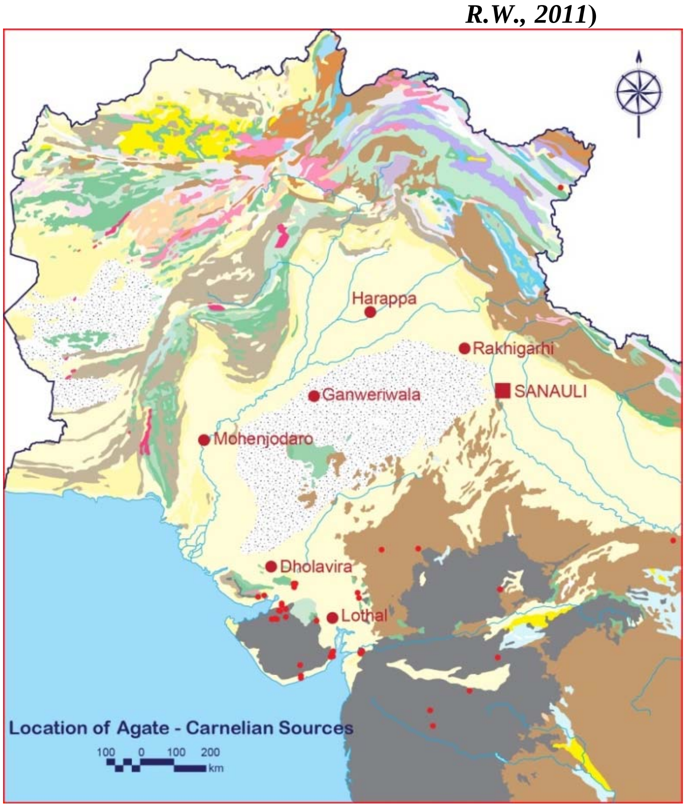


Fig. 5.314: Known agate-carnelian sources and Sanauli

c) State (whether complete, broken / partially preserved)

The state indicates the preservation condition of the beads along with its completeness. The analysis of 2188 available beads for study showed that an overwhelming 94.6% of them (2069 beads) are complete ones. 102 beads (4.7%) are either slightly chipped or broken, one end of 12 beads is broken (0.5%), four beads are preserved with one end only (0.2%) and one bead is split longitudinally. The analysis is indicated in the pie chart at Fig. 5.315. The chart clearly indicates and correlates with the nature of the context, as the beads are from the burials, they ought to be in a complete condition.

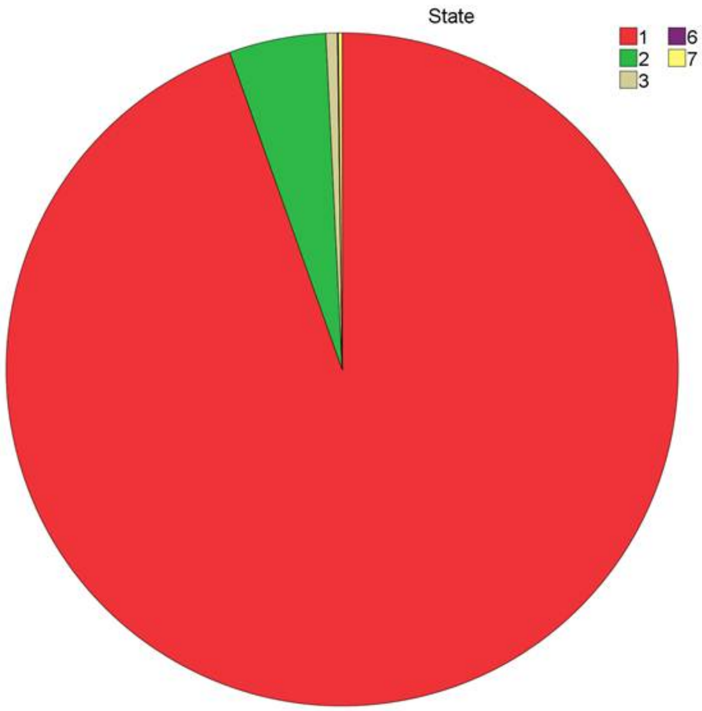


Fig. 5.315: Chart showing the distribution of state of beads

d) Condition (state of preservation)

The condition of the beads is the state of preservation in which it is found as well the surface modifications if any during the course of its final production and usage, if any. The analysis indicated that an overwhelming 96% (2100 beads) of the beads are found in a slightly rolled / slightly corroded condition. This clearly indicates its usage during the lifetime of its owner and was in continuous use. The analysis also indicates that 32 beads (1.5%) are in a fresh condition, while 27 beads (1.2%) are in slightly cracked condition and 28 beads (1.4%) in a whitened condition. The 96 % of the beads in a used condition when compared with the 94.6% complete beads indicate its primary usage and not discarded ones.

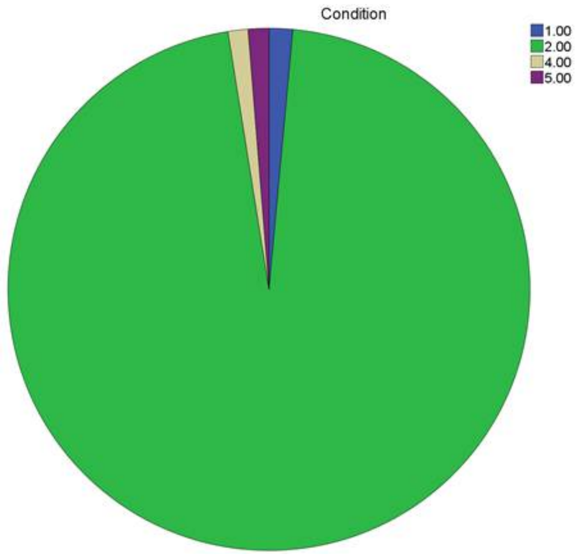


Fig. 5.316: Chart showing the distribution of condition of beads

e) Exterior Surface

The exterior surface pattern is the surface morphology and nature of the surface that is visible to the naked eye. The methodology and coding for recording various exterior surface patterns has been discussed above at 5.5.4.2.*v*. The data was available for 2188 beads for carrying out the analysis and generation of a pie chart for identification the various patterns. An overwhelming 88.7% (1941 beads) of the 2188 beads have a surface porous in nature and even in condition. The majority of the beads are the long tubular faience beads of the blue green variety. This is followed by the other conditions like smooth surface with no striate (106 beads; 4.8%); smooth rounded, highly polished and worn (90 beads, 4.1%); smooth with no fingerprints on the surface (40 beads, 1.8%) and incised surface with the design worn (11 beads, 0.5%).

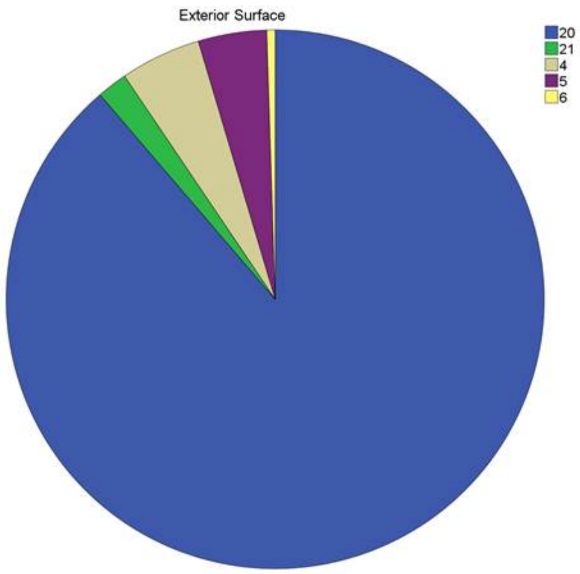


Fig. 5.317: Chart showing exterior surface patterns

f) Maximum and Minimum Lengths

As explained above under 5.5.4.1(vii), the maximum and minimum lengths of the beads were measured in order to determine the overall preferences in length while fashioning the beads. The recording methodology consisted of taking two readings and arriving at an average of both for each bead. The average lengths thus arrived was utilised for analysis purposes. In total, 2173 beads were available where the maximum and minimum lengths could be measured and an average length could be arrived at. The histogram produced using the measurements are at Fig. 5.318. The histogram indicates a mean measurement of 8.95 mm for the beads with a standard deviation of 5.574 mm. From the histogram, it is clearly visible that there are two peaks of preferred lengths, one falling between 0 and 10 mm and the other between 10 and 20 mm. There are 1613 beads whose length falls between 0 and 10 mm, while 461 beads with lengths between 10 and 20 mm. There are 85, 11 and 3 beads falling between the lengths 20 & 30, 30 & 40 and 50 & 60 mm respectively. There are only 3 beads with lengths above 50 mm, which indicate its rarity.

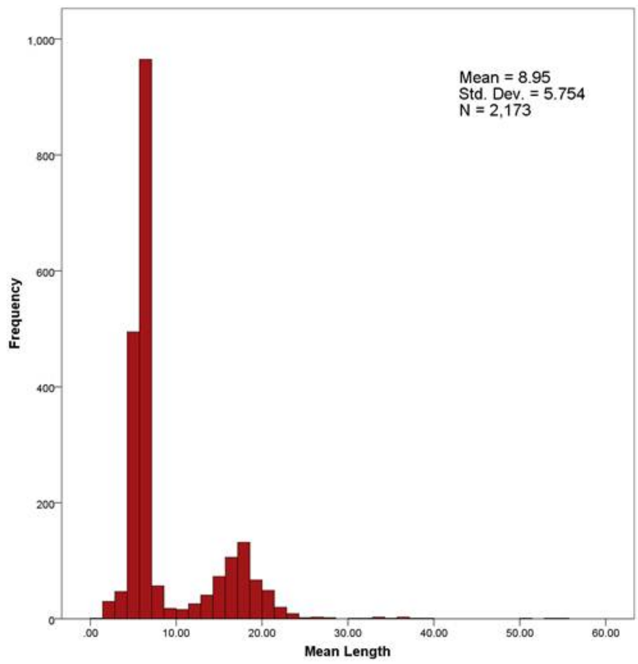


Fig. 5.318: Chart showing the histogram of mean length

g) Maximum and Minimum Widths

The maximum and minimum widths of the beads were also recorded similar to the length measurements in order to arrive at a pattern on the manufacture of beads. The mean of the two measurements was arrived at which was used for analysis and interpretations. The histogram thus developed based on the recordings

and measurements is at Fig. 5.319. The measurements were possible for 2175 beads and the histogram indicates that the mean is 4.09 mm with a standard deviation of 3.132 mm. An overwhelming 1584 beads out of 2175 have their widths ranging between 0 and 5 mm. The beads ranging in widths between 5 and 10 mm are 554 in number. The number of beads with widths ranging between 10 & 15, 15 & 20, 20 & 25 and 25 & 30 are 10, 3, 11 and 13 respectively. Thus, the most preferred width of beads lies between 0 and 10 mm.

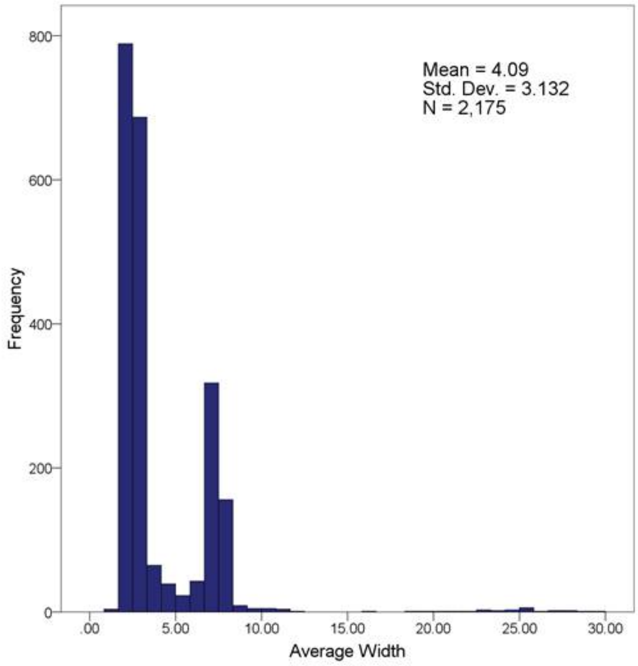


Fig. 5.319: Chart showing the histogram of average width

h) Interior Perforation Diameter

The interior perforation diameter is a good indicator of the width of drills used for manufacturing the bead holes. The measurements were taken with the aid of a digital vernier calipers and recording could be possible for 1846 beads. Based on the recordings and measurements a histogram was developed as indicated at Fig. 5.320. The histogram shows that the mean interior perforation diameter is 1.98 mm with a standard deviation of 1.202 mm. The interior perforation diameter of 1355 beads falls between 0 and 2 mm while those of 239 beads between 2 and 4 mm. The diameter of another 247 beads falls between 4 and 6 mm. The diameter of only 5 beads falls between 6 and 8 mm. Thus, the histogram gives an overall usage of drill bits with tip widths ranging from 0 and 5 mm for a majority of beads. In the case of faience beads, the drilling might not have been done and instead long tubes of faience have been fashioned and cut with the desired widths. The perforation in the

case of faience beads were not carried out using drill bits but with a different manufacturing technique altogether.

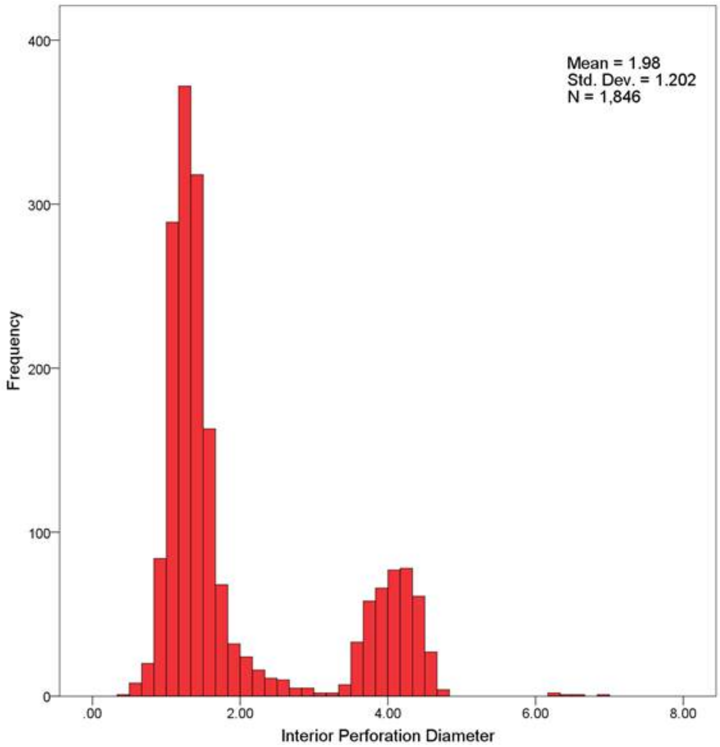


Fig. 5.320: Chart showing the histogram of interior perforation diameter

As the above histogram includes the majority of the beads with faience as raw material, a clear picture may not emerge on the tip widths of drill bits that could have been used for drilling the stone beads. Hence, all the internal perforation diameter of stone beads was separated and it was found that data was available for a total of 110 stone beads of various raw materials. A histogram was developed with the available data for 110 beads, which is shown at Fig. 5.321. The histogram shows a mean of 1.88 mm, marginally lesser than the 1.98 mm for all the bead varieties.

The standard deviation is 0.798 mm which is lesser than 1.202 mm for all the bead varieties. The internal perforation diameter of 109 out of 110 beads falls between 0 and 4 mm with the preference around 2 mm, while only one bead has a diameter of marginally above 6 mm. Thus, on comparing the histogram for all the bead varieties and stone beads only, it could be clearly observed that the diameter of stone beads is far lesser than all the beads, particularly faience beads. This is a clear indicator of the thin tip widths ranging around 2 mm were used for drilling the stone beads.

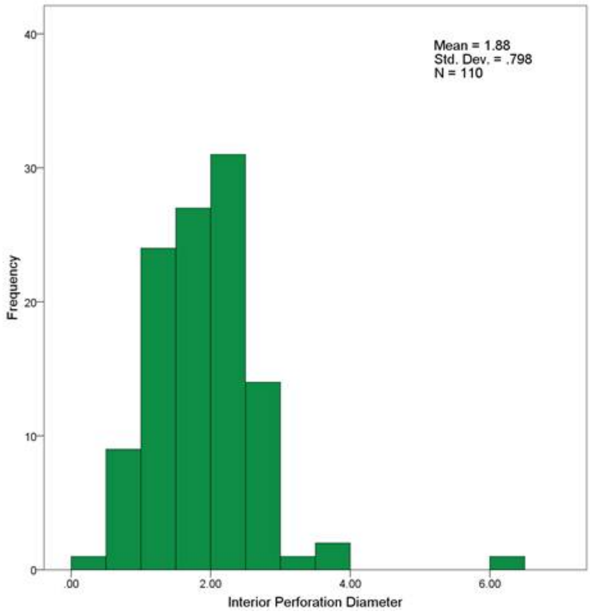


Fig. 5.321: Chart showing the histogram of interior perforation diameter of stone beads

i) Exterior Perforation Diameter

The exterior perforation diameter represents the maximum width of the drill that was used to bore a hole in the beads. Two readings of the exterior perforation diameter were taken with the aid of a digital vernier calipers and an average reading of the same taken for analysis and interpretation. The data available for 2171 beads was used for developing a histogram, which can be seen at Fig. 5.322. The histogram indicates that the mean external perforation diameter is 2.21 mm with a standard deviation of 1.209 mm. The mean of external perforation diameter is more than the internal perforation diameter for which the value read as 1.98, while the SD is more or less the same. The larger mean for external perforation diameter also confirms to the normal morphology of a drill bit, which attains a narrower tip when compared to the body of the drill. The above histogram also indicates that a total of 1529 beads have the external perforation diameter ranging between 0 and 2 mm; 234 beads ranging between 2 and 4 mm; 404 beads between 4 and 6 mm while 4 beads range between 6 and 8 mm.

It is also to be noted here that as in the case of internal perforation diameter, the external perforation diameter in the case of stone beads can be analysed separately as the faience beads does not require the effort and hard work of a stone bead. Further, the drills change their shape and morphology due to the friction and hardness of the raw material of the bead. A total 130 stone beads of various raw materials were available for the analysis.

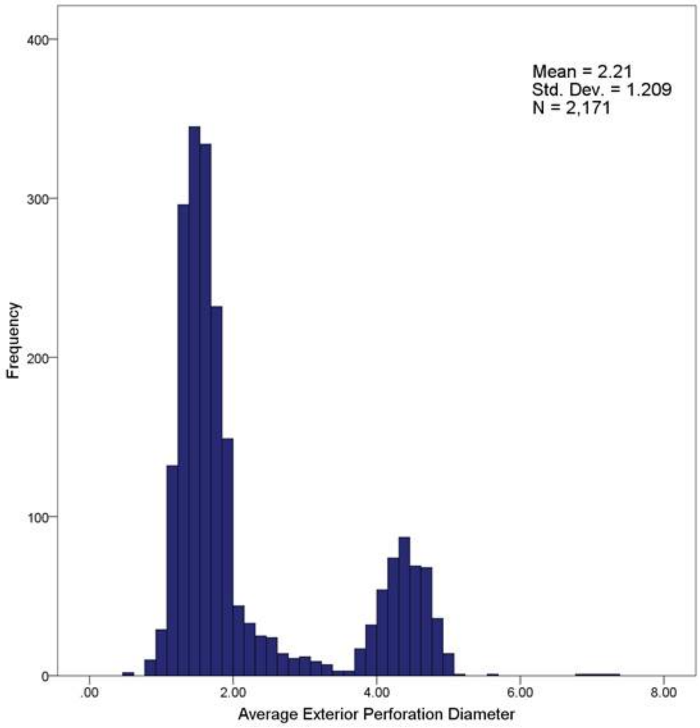


Fig. 5.322: Chart showing the histogram of average exterior perforation diameter

The histogram developed using the measurements of stone beads are at Fig. 5.323. The histogram indicates that the mean external perforation diameter of stone beads is 2.34 mm with a standard deviation of 0.567 mm. The mean of external perforation diameter is larger than the mean of internal perforation diameter of stone beads, which reads as 1.88 mm. The external perforation diameter of 129 beads falls between 1.5 and 3.6 mm.

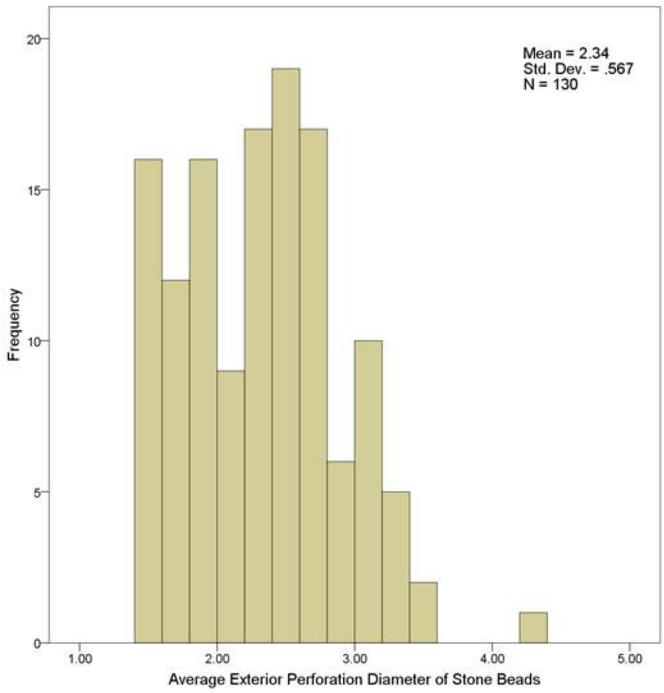


Fig. 5.323: Chart showing the histogram of average exterior perforation diameter of stone beads

j) Bead Surface Design

The analysis for the bead surface design is based upon the coding system already mentioned above and the readings taken for about 2173 beads were available for analysis and output as pie charts. The Fig. 5.324 shows the output developed as a pie chart on the analysis of various surface designs noticed from the Sanauli beads.

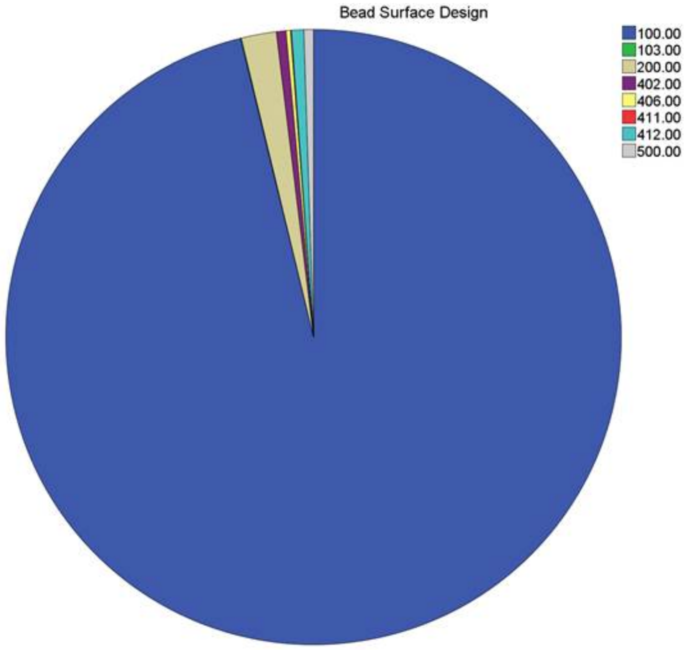


Fig. 5.324: Chart showing the patterns in bead surface design

From the pie chart, it can be noticed that an overwhelming majority of 96.2% (2090 in number) of the beads have a plain surface design, in other words, no surface design is noticed from these beads. Forty beads were noticed with banded design on the surface constituting for a 1.8% of the collection. This is followed by the designs of multiple eyes (0.6%; 14 beads); double banded and incised decorations (0.5% each; 11 beads each); single ellipse / single eye decoration (0.2%; 5 beads) and only in one instance a white surface design. Among the 2090 beads with a plain surface, the majority consists of the plain blue green faience found from the burials.

k) Drill Section

The coding system developed for recording the patterns for drill section of the beads is mentioned in detail at 5.5.4.2. The recording of drill section was possible for 2178 beads and the pie chart developed based on the analysis is at Fig. 5.325. The analysis indicates that an overwhelming majority of 2058 beads have a straight cylindrical section, constituting a 94.5% of the beads recorded.

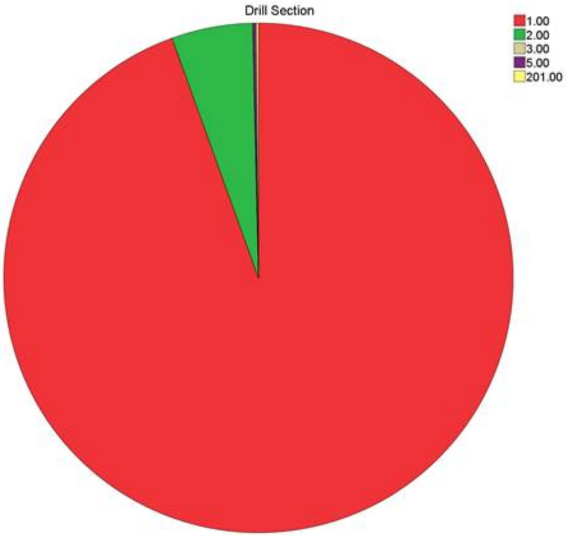


Fig. 5.325: Chart showing the pattern of drill section of beads

The majority of the beads having a straight cylindrical condition are also due to the fact that it contains a large number of blue green faience tubular beads, the drilling is somewhat different technically in terms of not using a normal drill bits. The faience tubular beads from Sanauli indicate a clear manufacturing technology of the Sanaulians.



Fig. 5.326a



Fig. 5.326b



Fig. 5.326c



Fig. 5.326d



Fig. 5.326e



Fig. 5.326f



Fig. 5.326g



Fig. 5.326h



Fig. 5.326i

Fig. 5.326a – 5.326i: Impression of thin wire or thread used to break away the individual beads from the parent faience tubes

The beads could have been manufactured in the form of long tubes, and then cut as per the required lengths. This is indicated by the presence of wire or thread impressions at the end of available beads that were spun across and used for splitting or breaking them from the parent tubes. The technology of straight cylindrical drill section is followed by long concave bi-cone variety represented by 112 beads (5.1%) from the collection, largely consisting of agate-carnelian beads.

The drill section is due to the employment of drilling from both the ends, as it would be feasible to produce a longer bead-drilling hole. This is also because due to this particular technology, a very longer drill bit is not required and the junction of the two sides drilling normally meets at the central portion of the bead.

Thus, the drilling pattern produces a long bi-cone pattern. The other drill technology patterns are short bi-cone represented by four beads (0.2%); drilled from both ends, one longer and other shorter represented by three beads (0.1%) and one beads with a section just meeting at the centre.

Investigation on the drilling technology of Sanauli Beads
Background on the previous studies

E.J.H. Mackay first studied the bead manufacturing and drilling mechanism on the Mohenjo-daro and Chanhu-daro evidences.[168] Of particular interest among the beads was a variety described by Mackay as "long barrel-cylinder shape" which were made of agate and carnelian. These beads often reached a maximum size of 12.319 cm (4.85 inch.) and "*made of the finest translucent carnelian that it was possible to obtain*".[169] Mackay found a great variety of unfinished stone beads in various stages of manufacture from Chanhu-daro, which has led to a fair understanding of the bead manufacturing mechanism involved in the production of the long barrel-cylinder beads.[170] Agate-Carnelian sources have been documented in Gujarat from Ratanpur in Rajpipla, Kapadvanj, Jamnagar, Khandek and Medhok[171] and of these, many of the agate-carnelian specimens from Harappa were derived from Mardak Bet (Randall, personal communication).

Mackay also found a large number of stone drills from Chanhu-daro, some broken and some complete. The complete ones average 3.81 cm long and 2.54 mm to 3.048 mm in diameter.[172] Mackay analysed some of these specimen through the Geological Survey of India and they described the stone drills as, "*….consist of chert, containing a little magnetite, the hardness of the specimens is 7…..do not occur in nature in this rod-like form; they have apparently been worked into shape*

from material likely to occur in any of the Archaean rock of India".[173] The beads were also bored first and then given polish, as has been evidenced from Chanhu-daro examples.[174]

The evidence from Shahr-i Sokhta (c. 2700 B.C.) indicates usage of stone drills with tips larger than 1 mm diameter for drilling lapis lazuli beads and other materials, while beads with holes less than 1 mm diameter are also noticed.[175] Shahdad in eastern Iran has yielded the presence of various colours of translucent chert and jasper for drilling small carnelian beads, short truncated bicones in shape.[176] The drills found from Mehrgarh were termed to be of pthanite as mentioned above. These drills were *"produced from a fine grained jasper-like rock with conchoidal fracture and good chipping properties, distinguished by a uniform light greenish color"*.[177] The correct identification of the material is yet to be made and recently Barthelemy *et al* have identified pumpelleyite as the mineral in one of the drills.[178] The excavation at Lothal yielded a bead factory with a working platform and eleven rooms along with two earthen jars containing 582 carnelian beads in one and 212 carnelian, shell and steatite beads.[179] The complex also brought to light a large number of cores, flakes, ground and unbored beads scatters in the courtyard and the surrounding rooms.[180] Rao suggests that the agate for making carnelian at Lothal came from Rajapipla mines. Rao brings to light the similarities between the modern bead making lapidaries and techniques with that of bead factory at Lothal, which yielded a kiln for baking pebble and beads of semi-precious stones along with beads in various stages of manufacture, partly baked pebbles, fragments of earthen bowls for baking pebbles and finished beads.[181]

The beads made at Khambhat are first subjected to the desired shape and polish and then put into drilling of holes. This is very much different from the archaeological record obtained by Mackay at Chanhu-daro. The perforation of the beads is made by diamond tipped drills fitted into a wooden shank and driven by a bow.[182] For lubricating the drill movement while in motion, an indigenous arrangement of a small pot with water and grit is made. A thin wire connected to the pot[183] regulates the flow of water and grit to the point of drilling of beads. The drills driven by bows, the seating arrangement and the usage of water and grit as lubricant and abrasive respectively seems to be the same mechanism adopted by the Harappans with the only exception that instead of diamond drills, they used ernestite and chert drills.

Two types of diamond drills were recorded by Kenoyer at Khambhat, namely *tekni* (a single rounded diamond chip to create a depression to facilitate the second drill that makes the actual boring) and *sayedi*, which has two tiny rounded diamonds set at right angles at the tip end.[184] As diamond was unknown during protohistoric period, drills of chert and types of mottled green jasper were in use, and much time was consumed in drilling the hard stones using these drills. Kenoyer estimates that at least two to ten hours would have been required to drill a perforation of 1 cm of an agate bead.[185]

Kenoyer and Vidale[186] carried out the study of the stone drills in a comprehensive manner. They suggested two new terms for the identification and classification of cylindrical drills with a dimpled tip. They are *"tapered drills"* and *"constricted cylindrical drills"* based on the morphology of the drills.[187] While the former has a very wide distribution and presence in the regions from Mesopotamia to the Indus, the latter is *"a unique form of standardized and specialized tool developed by the artisans of Indus Valley for perforation of long beads made of agate / carnelian and jasper"*.[188] Detailed microscopic investigations were carried out on a stone drill obtained from Mohenjo-daro.

Based on the investigations carried out, Kenoyer and Vidale suggested the name of "ernestite" to the type of stone drills that were used for drilling agate beads.[189] They describe ernestite as, *"….a fine grained metamorphic rock composed primarily of quartz, sillimanite, mullite, hematite and titanium-oxide phases"*. Of these, mullite is extremely rare in nature, but is produced in modern high temperature ceramic materials.[190] Kenoyer also suggests that presence of mullite in Harappan drill bits may be as a byproduct due to intentional heating of the original rock.[191] Ernestite is found in many colours and often multi-coloured ones are found. The XRD analysis on Harappa examples indicate that yellow brown matrix is composed of quartzite and sillimanite, while the brown-black portion is primarily of quartz with hematite and some sillimanite / mullite.[192] Some peaks of mullite or a yet to be identified intermediary phase are also noticed in the XRD analysis.[193]

The electron microprobe X-ray analysis on the yellow brown and brown-black portions indicates a matrix of quartz with iron / titanium oxide phase.[194] The studies carried out by Kenoyer and Vidale on ernestite further suggest that:

(i) concentrations of hematite and iron-titanium oxides give cutting and polishing properties;

(ii) matrix of quartz (probably as quartzite) and sillimanite produces a strongly bonded structure that withstood pressures of drilling;
(iii) abraded surface of the drills retains an irregular surface that facilitates drilling the carnelian, which is less strongly bonded;
(iv) the abrasion quality of the drills is due to the toughness of the sillimanite matrix and concentration of iron-titanium oxides in the rough surface of the drills.

Randall as a part of his doctoral research is conducting the recent study on the ernestite drills and raw materials. Randall describes ernestite (personal communication) as:

"Ernestite is an extremely fine-grained stone mottled with dark-brown to black patches and dendritic veins in a khaki-coloured matrix."

Randall carried out XRD and EMPA studies on four ernestite samples obtained from Mound E of Harappa. The diffraction peaks of two samples indicate that ernestite is composed mainly of quartz and mullite-sillimanite along with minor presence of hematite (iron oxide) and rutile (titanium oxide). The remaining two samples showed the presence of cristobalite and mullite and absence of quartz, hematite and rutile. Randall also speculates that ernestite may actually a variety of claystone known as tonstein that was heated by the Harappan bead makers to high temperatures so that they become extremely hard enough to drill stone beads of high hardness.

Recently, based on the studies of the bead drilling evidences from Mehrgarh and Nausharo, Barthelemy de Saiziue and Rodiere have suggested that four main techniques of perforations can be distinguishable.[195] They have also suggested that the material of the green stone drills previously reported as pthanite is wrong and the mineralogical studies carried out on one sample indicated that the mineral used is pumpelleyite.[196] Thus, it has been observed that no unanimous agreement on the correct identification of the material of these drills has been arrived so far with one exception of Mehrgarh evidence. The term "ernestite" has gained concurrence among the Harappan scholars for the time being. The drilling technology using ernestite was the hallmark of Harappan culture from *circa* 2600 – 1900 BCE. However, after the demise of Harappan culture, the technology using ernestite drills was lost considerably during late Harappan times as evidenced from Dholavira.[197]

Scanning Electron Microscope (SEM) Analysis of Sanauli beads

One of the earliest microscopic studies of stone drills and stages of bead manufacturing is by Tosi and Piperno while describing the lapis lazuli trade during

third millennium BCE and excavation at Shahr-i Sokhta.[198] The excavation at Shahr-i Sokhta brought to light evidence of working of lapis lazuli, carnelian and turquoise along with finished beads, unfinished beads in various stages of manufacture and large number of microliths.[199] The use of microscope in understanding the incisions produced by the stone drills and its pattern is also seen here.[200] Gorelick and Gwinnett made the first direct application of SEM analysis of artefact impressions while studying the cylinder seals from Mesopotamia.[201] They used the technique of *"….application of silicone impression techniques used in dentistry makes it possible to provide accurate, duplicated details of both the bore and the surface characteristics…impression could be examined directly or a more durable plastic cast mode, both methods were used after coating with metal for examination in the SEM."*[202] Gorelick *et al* also describes the procedure of application of silicone impression materials and taking impressions for study under the SEM.[203] The impression and plastic cast has to be coated with a conductive metallic coating to make it examined in SEM. Gwinnett *et al* uses the direct analysis of artefacts under SEM as well as silicone impressions of drill holes of beads from Shahr-i Sokhta to understand the manufacturing processes.[204] Gorelick *et al* while analysing the ancient Egyptian stone drilling mechanisms further discusses the silicone impression methodology.[205] Gorelick *et al* describes the following methodology:[206]

> *"…..are three separate steps…, all non-destructive to the object. They are (1) silicone impressions of the part to be studied in order to capture the tool marks; (2) examination of the impressions (or epoxy models made from them) in the scanning electron microscope (SEM) and the fabrication of photomicrographs, and (3) functional analysis attempting to duplicate the tool marks experimentally."*

The experimental studies carried out by Gorelick *et al.* related to the *"..functional analysis of a granite sarcophagus lid from the Old Kingdom period.."* have enabled to conclude that, *"…1) loose, dry abrasives (except diamond) did not produce concentric lines; 2) fixed abrasives or those in a watery slurry or a lubricant such as olive oil did produce concentric cutting lines; 3) corundum and diamond cannot be ruled out as not having been used to drill granite."*[207] In the Harappan context, the use of SEM analysis for drill impressions was first made by Kenoyer and Vidale.[208] Kenoyer *et al.* conducted experimental studies and analysed

various drill impressions from *"…a carnelian bead perforated by a double diamond tipped drill in Khambhat, India, a carnelian bead perforated by a Harappan stone drill and a pre-Columbian quartz bead drilled with an unknown abrasive."*[209] The drill impressions were viewed under magnifications ranging from 100 X – 300 X and the surface modifications on them were clearly delineated.[210]

The studies also indicated that the *"….abrading surface of the drill retains a rough irregular surface that helps in cutting the carnelian, which is not as strongly bonded"*[211] and *"…long carnelian beads during the Harappan phase of the Indus Valley tradition reveal that three or four different sizes of drills were used to perforate one half of the bead."*[212] Kenoyer also discusses in detail on the transformation and techniques of drilling of beads from Harappa through the Ravi Phase, Kot Diji Period, Harappan Period and late Harappan Period.[213] Another study involving the silicone impression and SEM analysis is by Barthelemy *et al.* of the beads from Mehrgarh and Nausharo, which gives different types of drilling at these sites.[214]



Fig. 5.327: Equipment for taking silicone impressions from bead



Fig. 5.328a



Fig. 5.328b



Fig. 5.328c



Fig. 5.328d



Fig. 5.328e



Fig. 5.328f

Fig. 5.328a – 5.328f: Beads from Sanauli and silicone impressions

With this background, the silicone impressions of select long beads from Sanauli burials were taken with an equipment kindly provided by Kenoyer. The drill impressions were studied using a SEM in the Department of Metallurgy and Material Sciences under the guidance of R. Balasubramaniam. The selected beads from Sanauli burials along with the silicone impressions of the drills are shown in Fig. 5.328 (a-f). The hallmark of the Harappan drilling technology of long barrel beads involve in the use of two or three drills of varying lengths as mentioned above and demonstrated by Kenoyer from Harappa evidences. This drilling methodology leaves a distinct negative mark on the inner side of drill holes that has been termed as stepped drilling. The schematic diagram of a stepped drilling and actual SEM impression is given in Figs. 5.329 & 5.330.

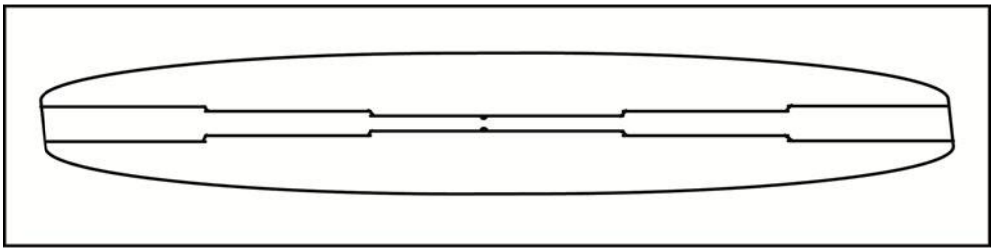


Fig. 5.329: Schematic diagram of stepped drilling of a long barrel cylindrical bead of Harappan culture

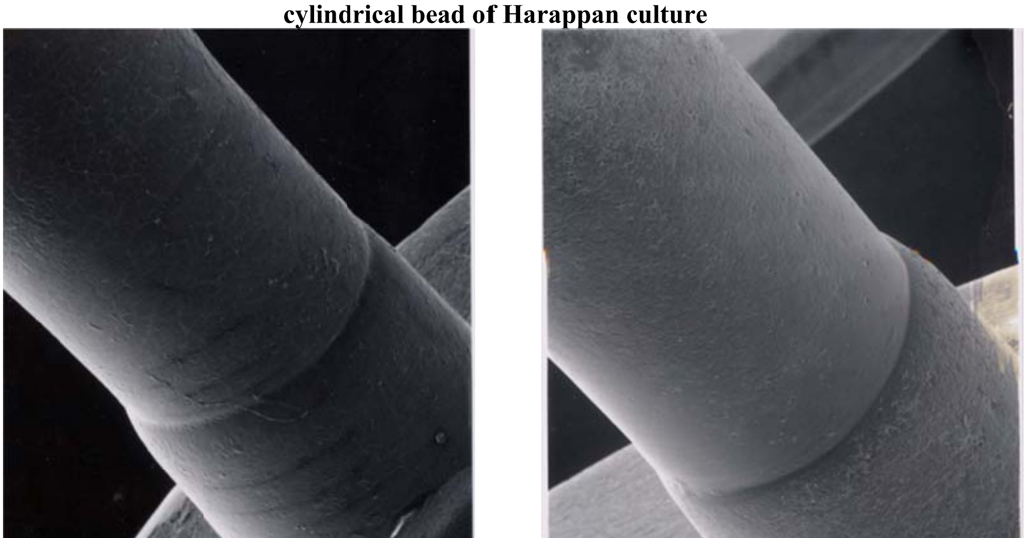


Fig. 5.330: SEM image of examples of stepped drilling of Harappan beads

While the drilling of a bead using ernestite drills leaves a reasonably polished and smooth striated surface on the sidewalls of drill holes, a copper tubular drill leaves irregular striations and several breakage points due to the flaring of the tip of copper drills as a result of overheating and expansion. A typical profile of a drill produced due to a copper tubular drill is at Fig. 5.331.

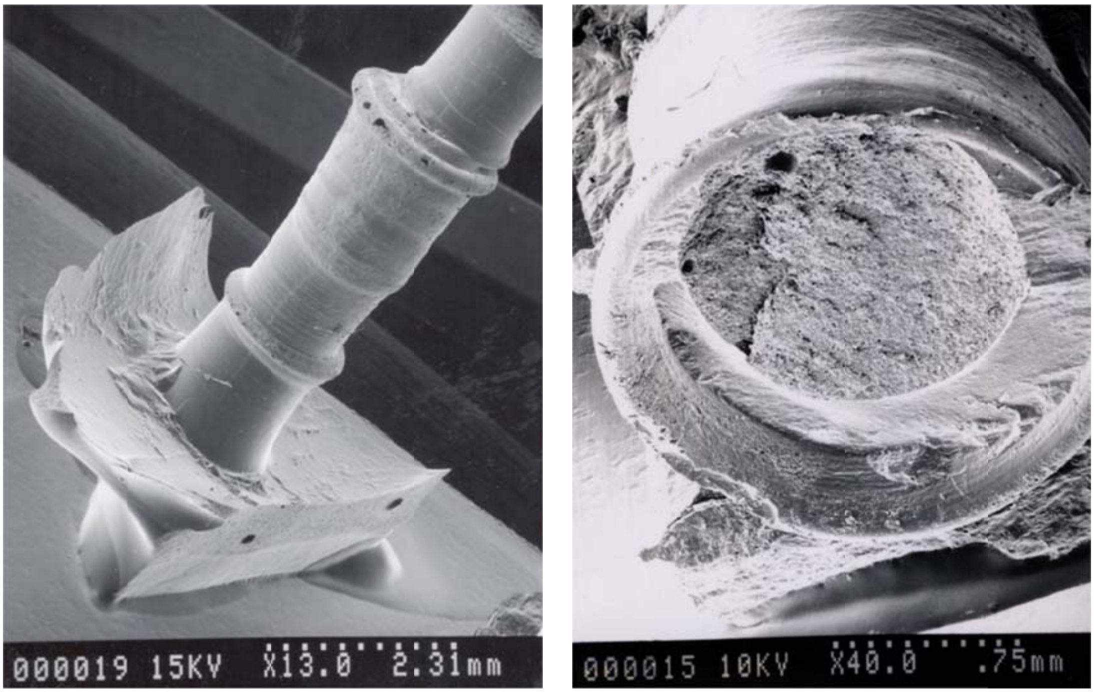


Fig. 5.331: Drill impression of a typical copper tubular drill

Thus, it may be observed that abrasives used along with the drills leaves concentric lines on the sidewalls of drill holes as gleaned from the studies of Gorelick *et al* and Gwinnett *et al*. Further, the studies by Kenoyer have revealed the patterns emerging due to ernestite and copper drills. The beads from Burials 23, 66, 75, 80 and 95 were identified for capturing drill impressions using silicone paste and conducted for SEM analysis.

The beads from Burial 23 reveal evidence of abrasives as indicated by the presence of concentric rings on the sidewalls (Figs. 5.332-5.339). These concentric rings are noticed in one of the two long barrel agate beads, in a regular pattern. The other bead revealed long parallel striations, which may be the indicator of long usage as a part of a necklace. The strings, of either cotton or silk, could have made the striations after a prolonged wear and tear. However, both the examples do not reflect the hallmark stepped drilling technique of the Mature Harappans. Instead, the drill section is a long biconical one, tapering towards the centre. The tapering is a gradual one and there is no evidence of several drills of reducing tip widths. The evidence indicates the necessity of probing more beads of similar types from an inter-site pattern to identify any patterning and local manufacturing techniques, if any.

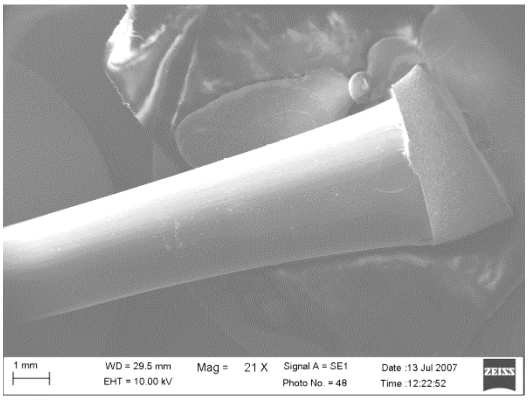


Fig. 5.332

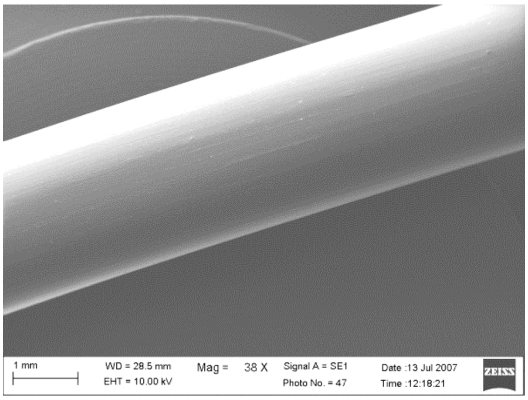


Fig. 5.333

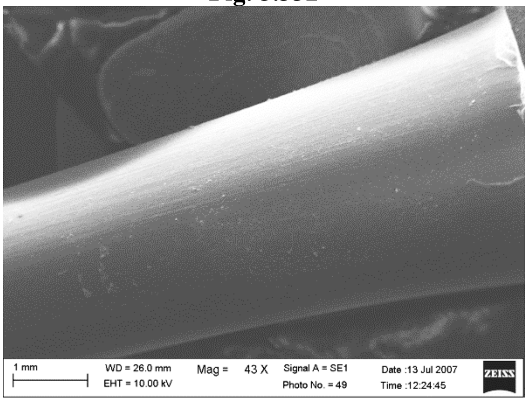


Fig. 5.334

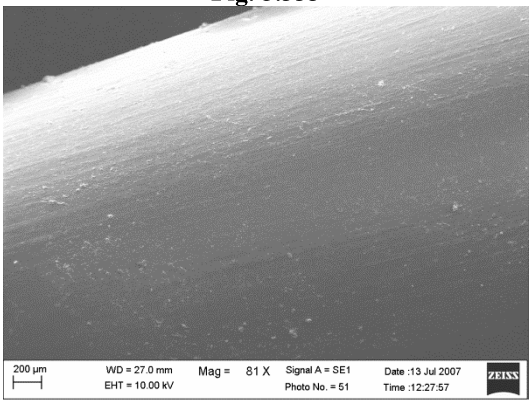


Fig. 5.335

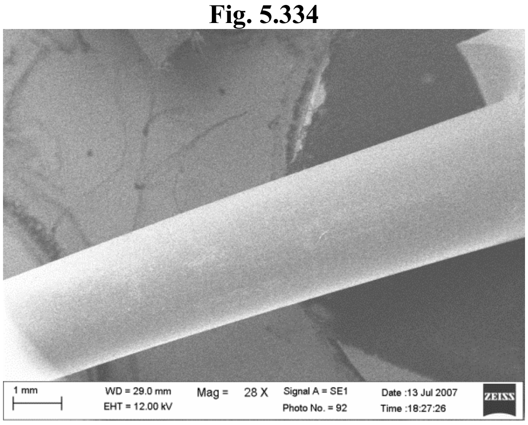


Fig. 5.336

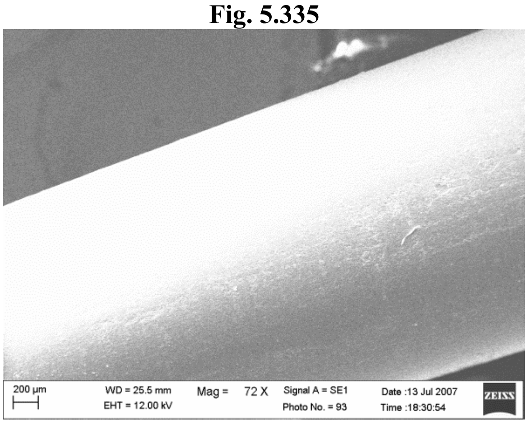


Fig. 5.337

Fig. 5.332 – 5.337: SEM images of bead from Burial 23, Sanauli

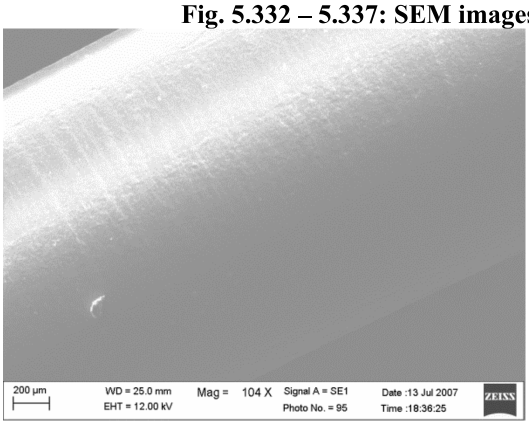


Fig. 5.338

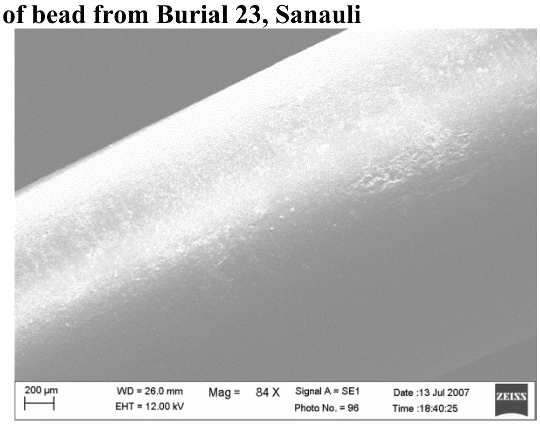


Fig. 5.339

Fig. 5.338 – 5.339: SEM images of bead from Burial 23, Sanauli

The SEM images of a bead from Burial 66 indicate a different pattern from that of Burial 23. The images are at Fig. 5.340-5.341, which indicate that two or

more drills of different tip widths were used for drilling them. However, the drill impression is not similar to the typical Harappan ones, which clearly indicates the absence of ernestite drill bits in the case of Sanauli ones. The junction portion of two or three different drills is also not uniform and indicates an irregular and rough patterning, which is also not noticed in the case of ernestite drill impressions.

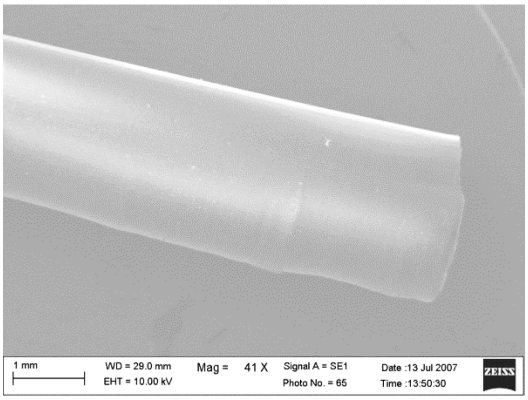


Fig. 5.340

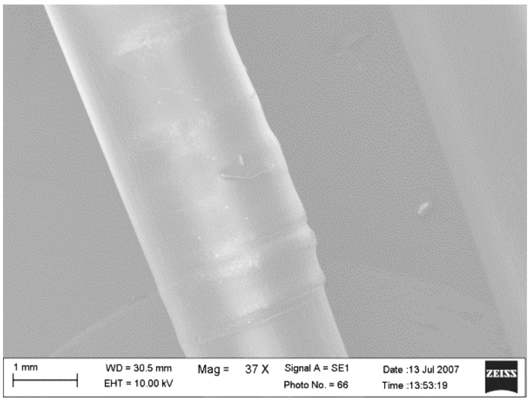


Fig. 5.341

Fig. 5.340 – 5.341: SEM images of bead from Burial 66, Sanauli

The SEM images of a bead from Burial 75 are at Fig. 5.342-5.344. The images also indicate a similar drilling pattern and methodology as that of the bead from Burial 66. The SEM image at 115 X clearly indicates the concentric circle patterns, even though not continuous and instead irregular, which may be the remnants of usage of abrasives while using the drills. Here too, two or more drills might have been used based on the findings from the drill impressions.

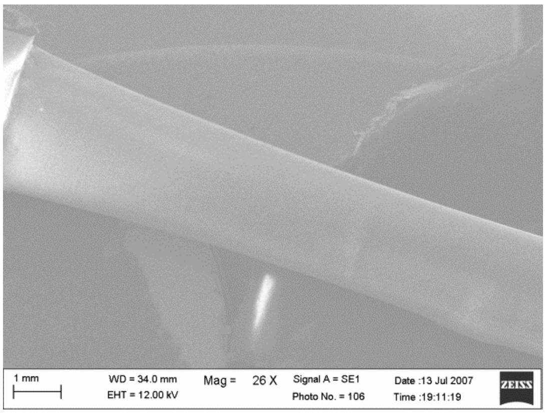


Fig. 5.342

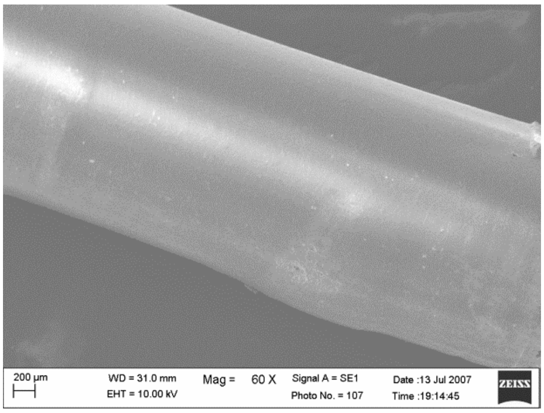


Fig. 5.343

The SEM images of the bead from Burial 80 (Figs. 5.345-5.348) also indicate the usage of two or more drills for manufacturing the beads. It is also similar to the beads from Burials 75 with the presence of concentric ring pattern on the drill walls, a clear indication of abrasives during drilling operation. The image at 49 X clearly indicates the regular patterning and placing of these concentric rings.

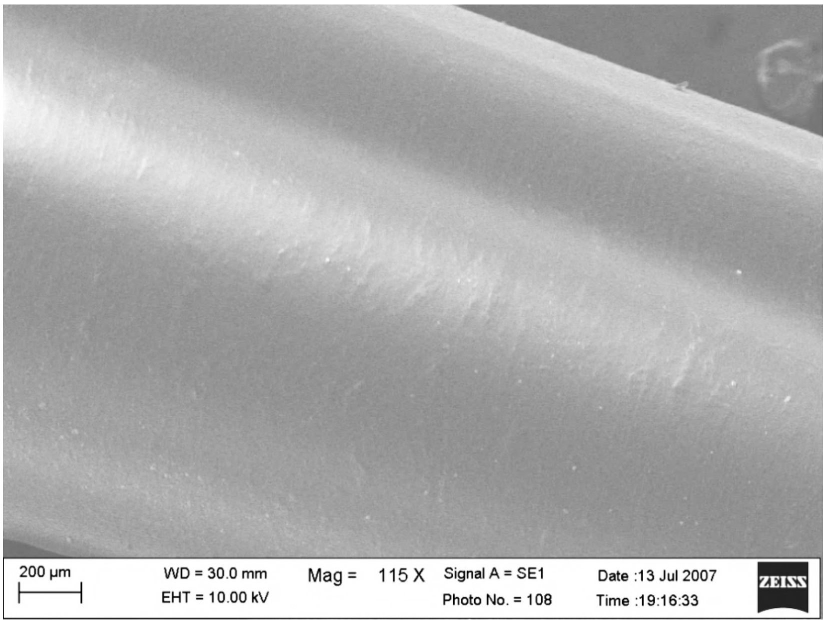


Fig. 5.344

Fig. 5.342 – 5.344: SEM images of bead from Burial 75, Sanauli

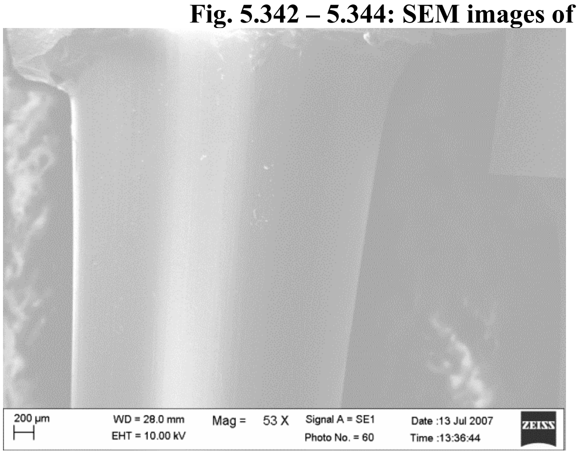


Fig. 5.345

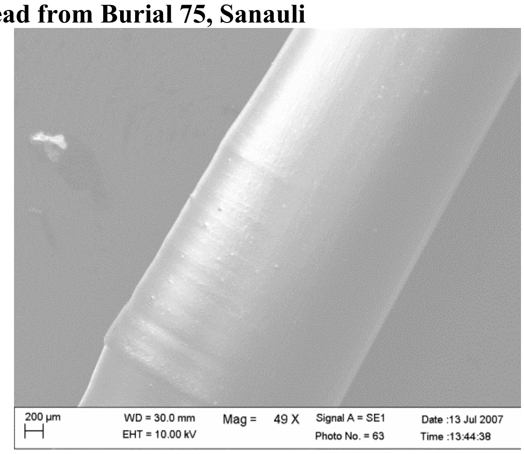


Fig. 5.346

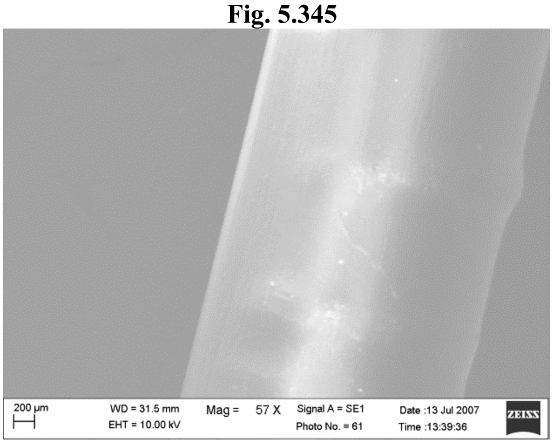


Fig. 5.347

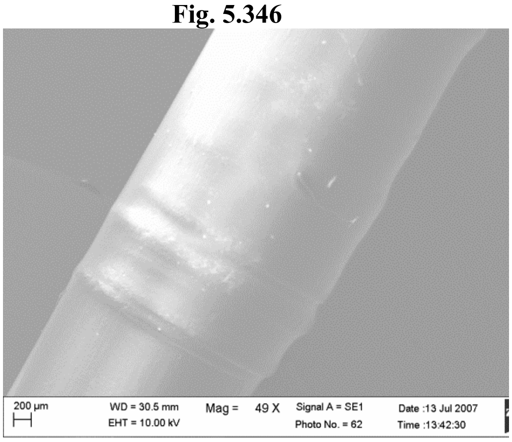


Fig. 5.348

Fig. 5.345 – 5.348: SEM images of bead from Burial 80, Sanauli

The Burial 95 is the richest in terms of burial ornaments from Sanauli. The SEM images (Figs. 5.349-5.354) of the long barrel beads from this burial reveal an interesting pattern and evidence. The images indicate a close possibility of ernestite type of drill bits, even though the pattern is not close enough to match the former technique of manufacture. The drill impressions may indicate the usage of a stone

drill; the exact identification is not possible at the present juncture in the absence of any available evidence from a habitation site. The habitation site from Sanauli is still elusive and only evidences from such a site can eventually lead us to identify the exact nature of stone drills used for manufacturing the beads from Sanauli. There is also a lack of evidence from other late Harappan sites with habitation deposits in the Yamuna – Hindon *doab* for the stone drills and hence it is difficult to pin point the nature of drills that have been used for manufacture.

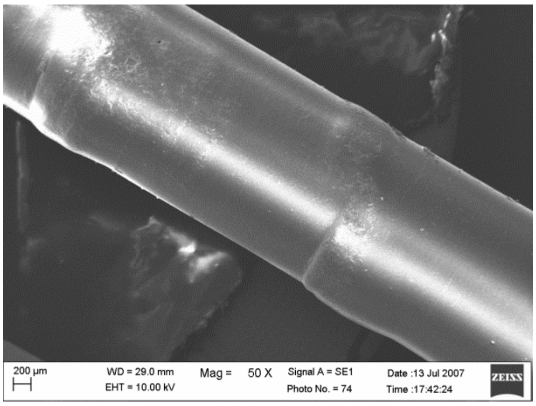


Fig. 5.349

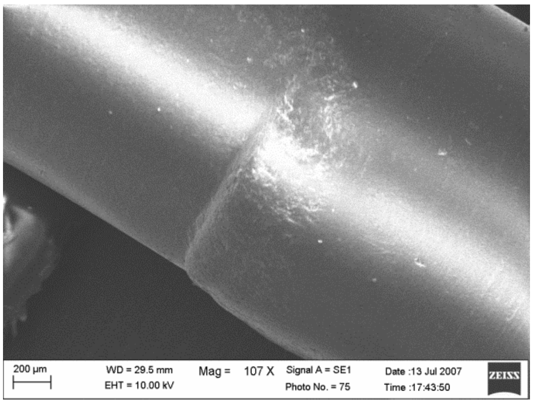


Fig. 5.350

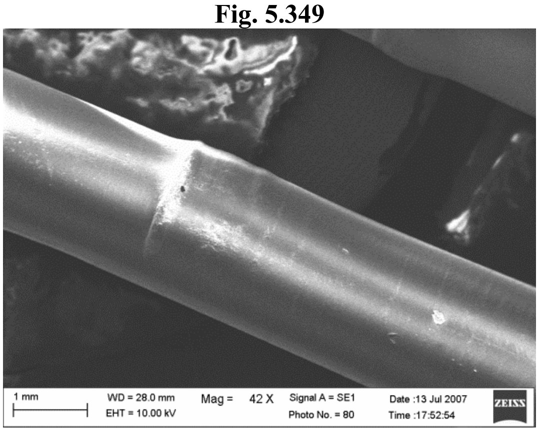


Fig. 5.351

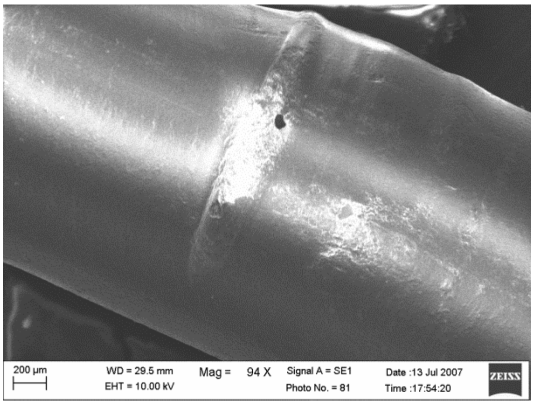


Fig. 5.352

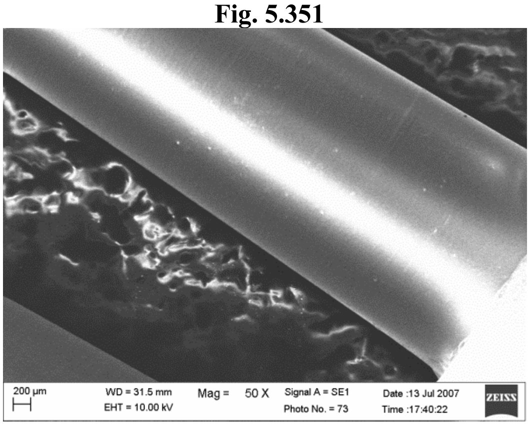


Fig. 5.353

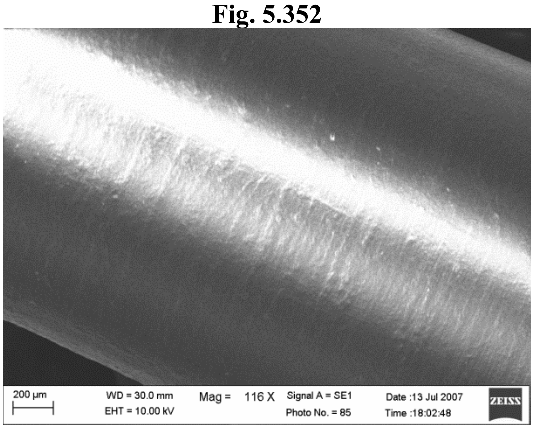


Fig. 5.354

Fig. 5.349 – 5.354: SEM images of bead from Burial 95, Sanauli

The above images clearly indicate the usage of two or three drills for manufacturing different lengths of the bead as indicated by the differential widths of drill walls. Further, the prominence of concentric rings on the sidewalls indicates the usage of abrasive. Thus, based on the SEM analysis of the drill impressions of beads from Sanauli, it may be concluded that the drilling technology during the late Harappan times in this region did not use the ernestite drill bits, and instead could have used similar harder stone drills, the exact nature of which is still elusive. Further, the evidence also indicates the extensive usage of abrasive that could have been used in conjunction with water, due to which concentric rings rare produced as revealed from experimental studies elsewhere.[215]

Gold

The gold artefacts found from the burials from Sanauli include four bangles, a gold necklace (both from Burial 95); a gold anthropomorphic figure (?) from Burial 66 and a gold cap (?) from Burial 42. The gold artefacts are described below to understand the significance and its place in the cultural milieu.

Burial 42

The Burial 42 consists of an extended inhumation burial and consists of the remains of a skeleton with the skull portion and part of upper body missing. The gold cap like object was found at a lower level below the rib portion.



Fig. 5.355: Burial 42, with the location of gold cap indicated by white arrow





Fig. 5.356: Location of gold cap *in situ,* Burial 42, Sanauli

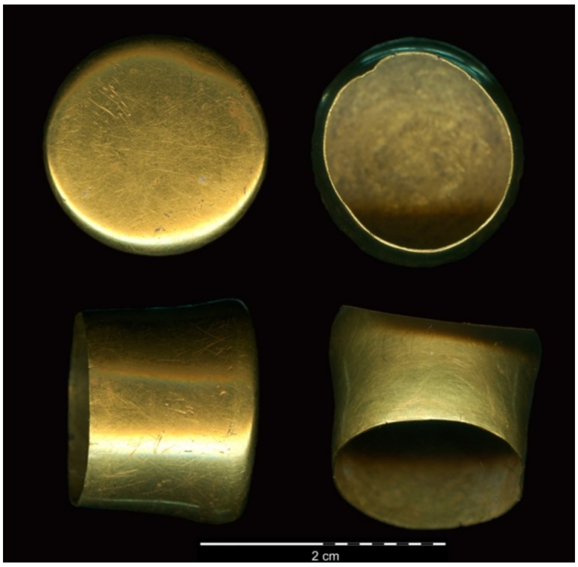


Fig. 5.357: Multiple views and close-up details of gold cap, Burial 42, Sanauli

The excavator describes this gold cap as a significant one, and has a striking resemblance with the cap of a commanding stick and associates it with the privileged status of the interred person. The gold cap is unique in nature and not found from other late Harappan sites. Its exact function at this stage cannot be identified.

Burial 66

The Burial 66 along with Burial feature named as 56 both belong to a single burial. The gold stylised human figure was found over a skull, one of the few intact bones found from this burial. The position of the skull indicates its secondary position and hence the exact *in situ* position of this stylised human figure could not be determined.

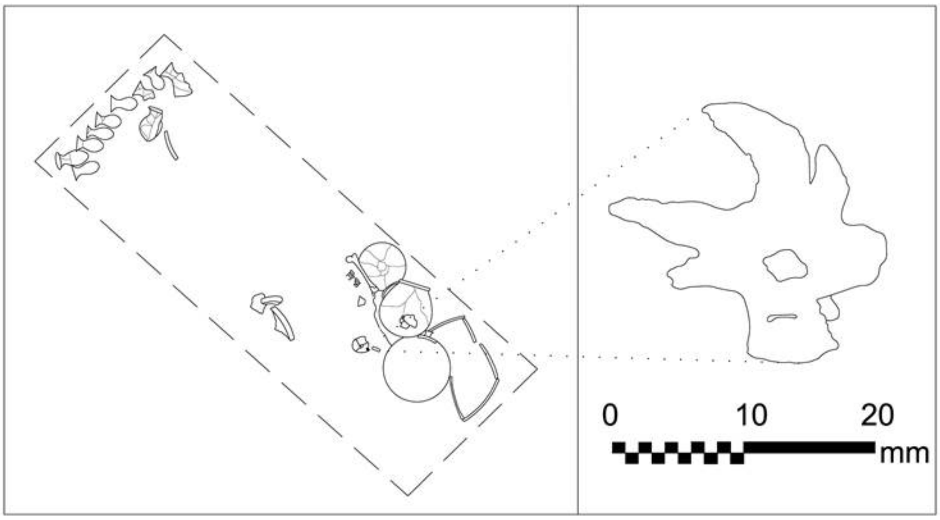


Fig. 5.358: Plan of Burial 66 along with location of gold stylised object, Sanauli

The gold stylised human figure like object is made of a flat and thin gold sheet and resembles a central object with radiating arms. There are also two slits at the upper portion of the object, with a thin gold sheet found *in situ,* the purpose of

which could be presumed that it fastened the object to a fillet like object. The excavator identifies this object as an anthropomorphic figure. The gold object is also found with stains and corrosive products, the origin of which can be due to the local buried conditions. Further, as gold is a noble metal, it is actually devoid of any corrosive product and hence the exact origin of stains could be determined only through scientific investigations.



Fig. 5.359: Close-up details of gold stylised object, Sanauli

Burial 95

The most elaborate and rich burial in terms of gold jewellery at Sanauli is Burial 95. This burial belonged to a juvenile female found interred in an extended inhumation position. The presence of a necklace consisting of nine long barrel agate beads and a gold necklace alternately interlaced with agate black and white zone beads was found at the neck portion. In addition to the neck jewellery, four gold bangles, hollow in nature and heart shaped ones, were found two each in on the wrist of each arm.

The gold bangles are very similar to the heart shaped copper bangle found from Burial 1 and also similar to gold bangles found from Mandi, another Late Harappan site in the Yamuna – Hindon *doab*. The presence of such a large quantity of gold jewellery from a burial context, that too of a Late Harappan origin is indeed surprising. This is because Mature Harappan burials have not yielded such a rich harvest of gold jewellery even if all the burials discovered so far are put together.

This find of gold jewellery from Sanauli along with the large hoard of gold jewellery from Mandi, both belonging to late Harappan times is a clear indicator of significant material wealth of this region.

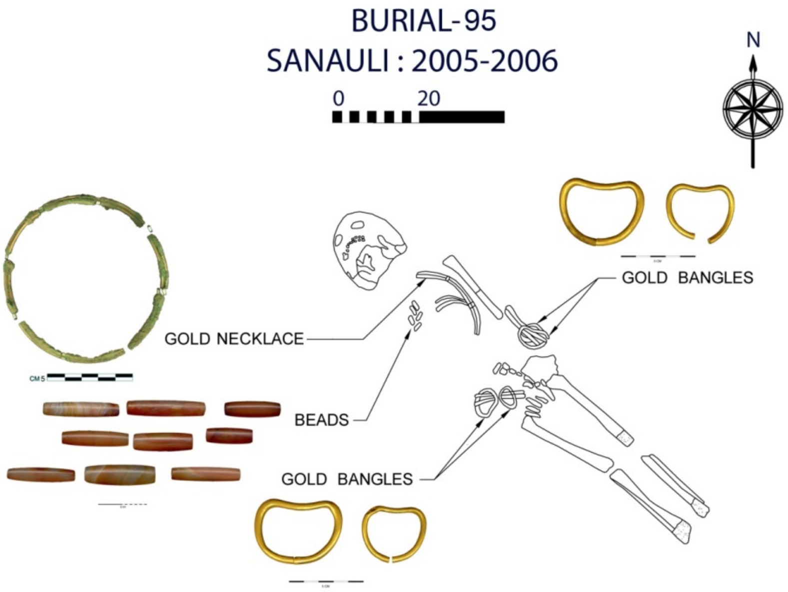


Fig. 5.360: Burial 95 along with location details of jewellery, Sanauli

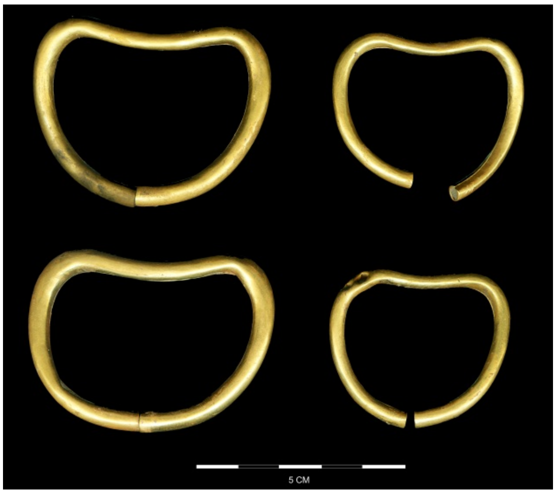


Fig. 5.361: Gold Bangles, Burial 95



Fig. 5.362: Gold Necklace, Burial 95

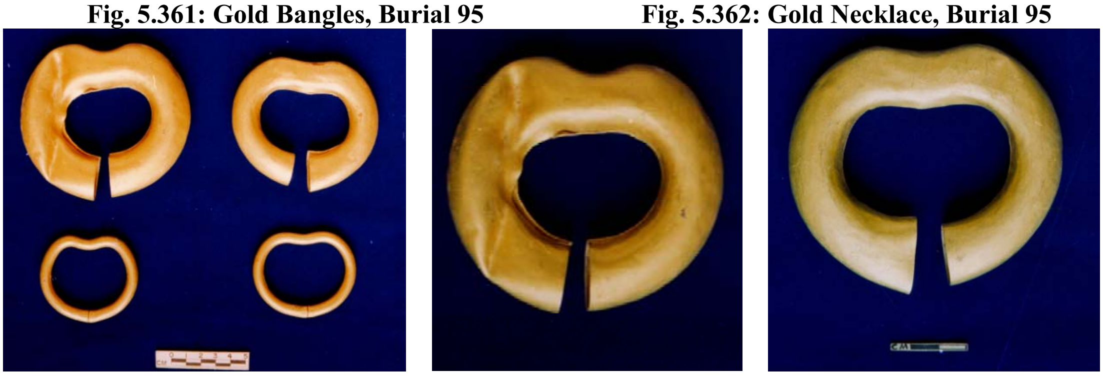


Fig. 5.363: Gold bangles from Mandi hoard, district Muzaffarnagar

The gold necklace found from Burial 95 actually consists of two necklaces combined together due to the corrosion activities of copper wire used to fasten them with the agate zone beads. One of the necklace is slightly of lesser diameter and hence smaller than the other. Each necklace consists of eight gold tubes bent in the

form of a circle connected together through a copper wire, agate zone beads and gold two-hole spacer beads on either side of the latter.



Fig. 5.364: Silver bangles from Mandi hoard, district Muzaffarnagar

The agate zone beads are also eight in number fastened to two gold tubes on either side. The surface of each gold tube is decorated in the form of thin grooves in order to make it resemble thin gold disc beads. Some of the agate zone beads have split into two due to the expansion of the copper wires due to corrosion. The thickness of the copper wire used to fasten the beads and gold tubes is 1.323 mm while the thickness of one of the spacer bead is 0.433 mm.



Fig. 5.365: Close-up view of gold necklace with grooved pattern, Sanauli

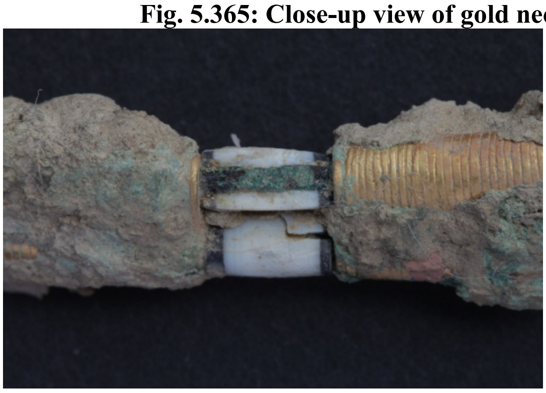


Fig. 5.366: Close-up view of break-up pattern of agate bead showing copper wire, Sanauli



Fig. 5.367: Close-up view of agate bead and gold spacer bead, Sanauli



Fig. 5.368: Close-up view of agate bead and gold spacer bead, Sanauli

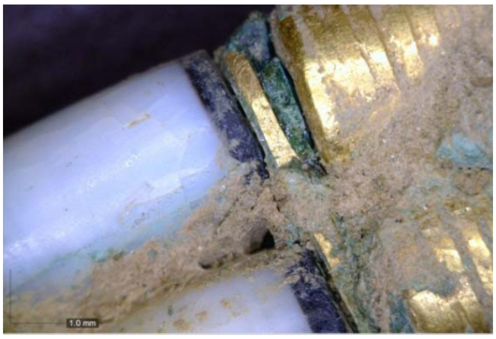


Fig. 5.369: Close-up view of agate bead and gold spacer bead, Sanauli



Fig. 5.370: Close-up view of gold spacer bead, Sanauli

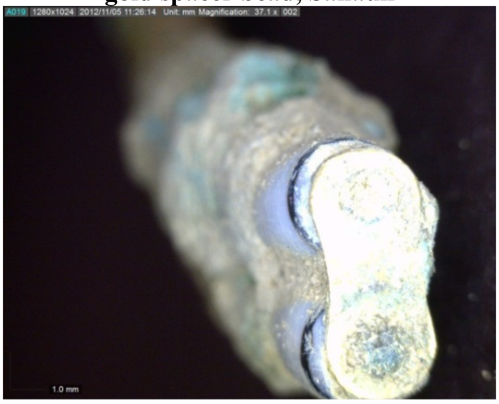


Fig. 5.371: Close-up view of gold spacer bead, Sanauli

Copper

The most prominent items of personal ornaments among the burial goods consist of gold and copper bangles, their number next only to the large number of stone beads. This may indicate its rarity as well as it valuablity in the contemporary society. The presence of copper as distinct personal ornaments is noticed from four of the 116 burial features identified at Sanauli. The personal ornaments of copper are bangles and each set is different from each other in terms of design and execution. The burials from which copper bangles are found in situ are Burials 1, 4, 48 and 93.

Burial 1



Fig. 5.372: Location of copper bangles, Burial 1, Sanauli



Fig. 5.373: Close-up view of copoper bangles from Burial 1, Sanauli

The Burial 1, which is an extended inhumation type has two copper bangles, one each worn on the wrist of each hand. The copper bangle consists of a thin wire fashioned and designed in the form of a heart closely resembling the gold bangle examples from Burial 95. Both the bangles were found *in situ* during excavation. The shape of the bangles is a general indicator of the continuity in forms and shapes of Harappan ornamental styles during Late Harappan times. This also indicates the significance attached to the particular shape in which various other artefact and ornaments were found right through the Harappan Culture. They were removed from the burial during transportation from the excavated site. The bangles are now chemically preserved to prevent any further corrosion and deterioration.

Burial 4

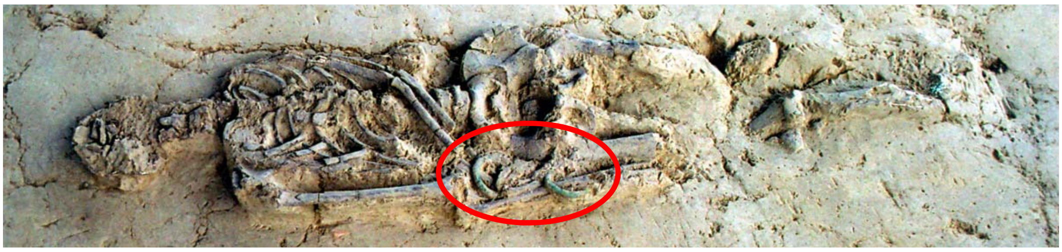


Fig. 5.374: Location of copper bangles, Burial 4, Sanauli



Fig. 5.375: Close-up view of copoper bangles from Burial 4, Sanauli

Another burial in which copper bangles are found as personal ornaments is from Burial 4. This burial is also of the extended inhumation burial and each bangle is found on the wrist of each hand. The position of the hands and its placement is interesting.

The details have been already explained in 5.5.3.4. The left hand crosses over the body and the fingers hold the right lower arm. The copper bangles are very different in terms of shape and pattern from Burial 1. Both the bangles are thick and sturdy ones in the form of a circle but not joined. A considerable gap is noticed at the ends. In terms of design, this is the most simple form when compared to the heart shaped ones.

Burial 48

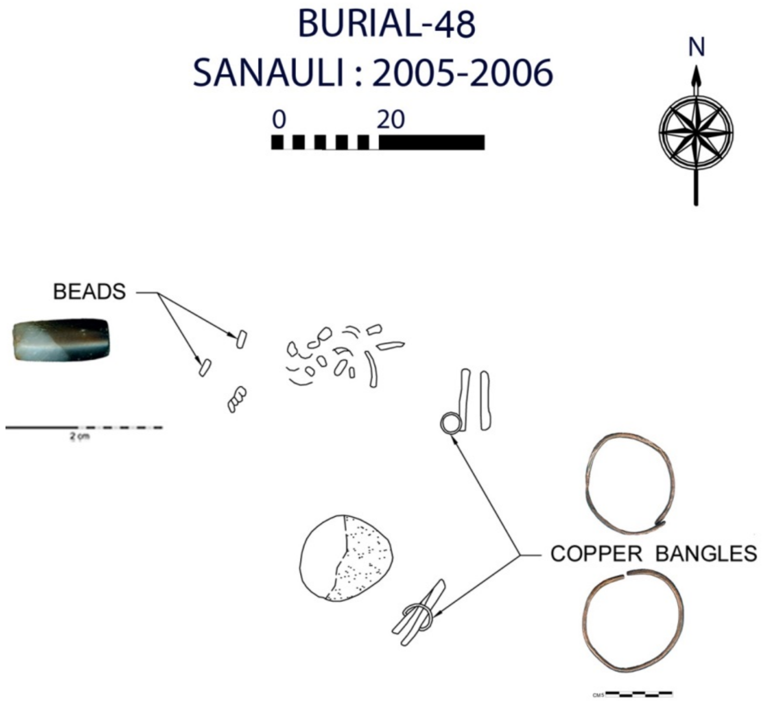


Fig. 5.376: Location of copper bangles, Burial 48, Sanauli



Fig. 5.377: Close-up view of copoper bangles from Burial 48, Sanauli

Another burial from which a pair of copper bangles is found is from Burial 48. The burial is a disturbed one and the placement of the bangles indicates the

disturbance. However, one of the bangles is found still worn in the portion of preserved right hand, while the left hand is preserved only partially and the bangle found near to it. The bangles are of the simple type without any design, and are circular in shape. They consist of thin copper wires fashioned in the form of a circle. The shape is similar to the bangles from Burial 4 with the exception that the former is thinner and the ends joined.

Burial 93

The Burial 93 is one of the well-preserved burials from Sanauli and is a primary extended inhumation. The copper bangle from this burial is highly corroded and preserved only partially. However, they are found *in situ* around the wrists of the arms.



Fig. 5.378: Location of copper bangles, Burial 93, Sanauli



Fig. 5.379: Close-up view of copoper bangles from Burial 93, Sanauli

The copper bangle from this burial is in the form of a thin flat strip of copper fashioned in the form of a circle.

5.5.4.3 Weapons

Another category of burial goods that have been found from the burials is that of weapons. The excavation has brought to light the presence of an antennae sword along with sheath kept *in situ* from Burial 14. Both these artefacts are made of copper and have been described above under 5.5.3.14. Another copper antennae sword was also discovered prior to the excavation and collected from the villagers who found the weapon during clearance operation.

These two specimens belong to the copper hoard repertoire, generally placed in the second millennium BCE based on the probable association with OCP in

the Ganga – Yamuna *doab*, the latter found stratigraphically below Painted Grey Ware (PGW) and even Black and Red Ware at some sites. Vincent Smith made the earliest assessment on copper hoard in 1905, which was supplemented largely by B.B. Lal in 1951[216] and later discussed by D.P. Agrawal in 1969.[217]

The copper hoards are chance finds, not from a regular excavation so far and found in a wide area in India, but concentrated in the Bihar and Western Uttar Pradesh.[218] The only site that has yielded evidence of association of copper hoard specimen with Ochre Coloured Pottery (OCP) is Saipai, district Etawah, Uttar Pradesh.[219] Except Saipai, the entire copper hoard finds so far are from chance finds and the Gungeria in district Balaghat, which brought to light 424 tools and weapons, along with 102 sheets of silver objects.[220] The copper hoard repertoire consists of flat celts, shouldered celts, bar-celts, rings, harpoons, antennae swords, anthropomorphic figures, hatchets, lugged spearheads, etc.[221]

Lal, as early as 1951 proposed that the authors of OCP and copper hoards may be the same, based on the occurrence of the former from a copper hoard site of Rajpur Parsu.[222] The site of Madarpur, in district Moradabad that brought to light a hoard of 32 copper anthropomorphic figures, was later excavated by Agra Circle of ASI in 2001, also revealed the presence of 35 - 48 cm thickness deposit of OCP.[223]



Fig. 5.380: Copper antenna sword and sheath from Burial 14, Sanauli

One of the items of copper hoard repertoire is the "antennae sword" which is described by Lal as *"….distinctive feature of these swords is the hilt which bifurcates like the antenna of an insect."*[224] Agrawal suggests that the antenna sword of copper hoard repertoire was manufactured using cast technique in one piece[225] along with antenna and blade, followed by hammering, chiseling, filing and tempering.[226]

The length of the antenna swords from copper hoard repertoire ranges from 42 – 75 cms.[227] Commenting upon the technological aspects of copper implements

from the hoard, Agrawal opines that they contain 98.77% pure copper without no deliberate attempt of tin alloying, unlike the Harappans who attempted 1-23% of tin alloying along with other metals like lead, arsenic and nickel.[228] Agrawal, further observes, "….that the copper hoard people could close-case with pure copper speaks for their dexterity, as it is a very difficult thing to achieve."[229]



Fig. 5.381: Copper antenna sword chance find before excavation, Sanauli

The specimen found from Burial 14 and chance find tallies well with the manufacturing technique discussed by Agrawal. The "antenna" of one of the Sanauli swords is slightly different from the already reported ones from Fatehgarh. The Sanauli example, which is a chance find, has a prominent antenna, not like the *"antenna of an insect"* as described by Lal, but a prominent arc on both sides, resembling the eye-brow, while the one from Burial 14 tallies well with the general typology of copper hoards.

The antenna sword from Burial 14 measures 47.91 cm in length, with a maximum thickness of 3.46 cm at the broadest point, while the tip width measures 1.48 cm. The broadest point made by the two antennae measures 19.95 cm. The sheath found along with the sword measures 37.38 cm in length and 3.36 cm at its broadest point. While the sword length except the antenna part measures 35.53 cm, which tallies well with the length of the sword, the width of sword is slightly larger than that of sheath. This indicates that the sword was not fitted completely inside the sheath and there is a possibility of either a leather attachment over and above the sheath to hold the sword.

The chance find specimen of antenna sword measures 52.36 cm in total with a sword length of 43.63 cm except the antenna portion. The maximum width at the broadest point measures 4.77 cm and the width near the tip is 0.94 cm. The width of

the antenna portion measures 23.89 cm, which is a huge arc on both sides of the sword.

Another specimen, which is clearly a weapon, is a spearhead from Burial 111. The spearhead is manufactured from a very thin sheet of copper measuring 0.31 mm near the tip, 1.05 mm at the centre and 1.16 mm at the thickest point near the bottom, where it would have been shafted with a wooden handle. The width of the spearhead ranges from 8.57 mm near the tip to 31.37 mm near the base. The total length of the specimen is 127.35 mm. The parallels to such specimen from the copper hoard are not available. As indicated above, this spearhead bears impression of a mat, in which it could have been wrapped and kept in the burial.



Fig. 5.382: Copper spearhead from Burial 111, Sanauli

5.5.5 Scientific Investigations

5.5.5.1 Bio-archaeological investigations in Archaeology

The studies in the reconstruction of palaeo-diet, mobility, palaeo-climate, etc., based on the stable isotope analysis of human skeletal and fossil remains have advanced enormously in the last two decades of the 20th century. More and more anthropologists and archaeologists are utilising this technique in understanding diet of the past humans as it "*…is considered among the most important factors underlying behavioral and ecological differences among primates.*"[230] In this regard, the study of morphological variations and micro-wear studies of dental remains from past human populations provide invaluable insights.[231] However, limitations of such studies led to the development of much more sophisticated techniques like stable isotope analyses due to its advantages like "*…. 'you are what you eat' ….isotopic composition of one's food is ultimately traceable in one's tissues….provides a direct chemical means of investigating the diets of modern and fossil primates.*"[232] In this regard, Pate observes the following:

"The inorganic and organic chemical composition of bones and teeth can provide information about past diet and habitat use."[233]

"Chemical signatures are used to address individual dietary variability in……human and faunal populations."[234]

"….archaeologists can conduct physical and chemical examinations of the bones themselves to address in variability in past diet and health."[235]

The first attempt in this regard using organic materials like collagen to understand the patterns in consumption of maize among the Native American population in New York State was made by Vogel and van der Merwe in 1977.[236] The study was possible in comparing the variations in photosynthesis of C_4 and C_3 plants, as maize uses C_4 photosynthesis and all other potential food plants at that point of time in New York State used C_3 photosynthesis.[237] As collagen is rarely preserved in samples more than 10,000 years old, this kind of study could not be undertaken for prehistoric populations, and hence paved way for development of other techniques like state isotope analyses. Further, the inadequacies in the preservation of even inorganic components in bones, and its replacement during postmortem conditions rendered the study difficult. In such a scenario, the development of techniques in reconstructing palaeodietary patterns using enamel apatite by Lee-Thorp and van der Merwe in 1987 *"….showed that dental enamel from ancient fauna with well-understood diets retained its biogenic isotope signal."*[238]

In addition to the carbon isotopes mentioned above, the isotopes of Strontium (Sr), Lead (Pb), Nitrogen (N), etc., have also been analysed for reconstructing palaeodiet and past climatic changes. Pate describes the studies as *"….multi-element paleodietary studies employ a number of additional elements associated with bone mineral in an attempt to improve distinctions of (1) meat vs vegetable food components, (2) marine vs terrestrial food components, and (3) small vs large inputs of nuts and / or marine / freshwater shellfish."*[239] The high concentration of trace elements present in foods like terrestrial plants (Ba, Mg, Mn, Ni, Sr, V); nuts (Cu, Mg, Mn, Sr, Zn); meats (Cu, Mo, Se, Zn), shellfish (Ba, Mg, Sr, Zn) and seafood (Cu, Mg, Sr).[240] Pate also draws attention on the applications of multi-element analyses which have been helpful in addressing *"….(1) social differentiation, (2) differences between hunter-gatherer and agricultural diets, (3) maize consumption, (4) marine vs terrestrial dietary inputs, and (5) shellfish*

consumption."[241] A brief on the chief isotopes that are useful in reconstructing the palaeo-diet is given below.

Strontium Isotopes

Strontium (Sr) is found in nature in various agents like *"…..rock, groundwater, soil, plants and animals."*[242] Out of the four isotopes of Strontium, ^{87}Sr (~7.04%) is radiogenic, which is formed from rubidium (^{87}Rb) due to radioactive decay with a half-life of ~4.88 X 10^{10} years.[243] The strontium concentrations and isotopes enter the plant and human tissue system from the geological environment as it is present in various agents. However, the concentrations and isotopes also vary depending upon the local geology.

The basic principle of strontium studies is that even though the concentration of strontium in plant or animal tissue varies in relation to its tropical position, *"….the isotopic composition of strontium is not changed or fractionated by biological processes during strontium transport through the ecosystem, because the mass differences between the four strontium isotopes are relatively small."*[244] It is well documented that the geologically very older rocks (> 1 ma), like *"….clay-rich rocks such as shale, or igneous rocks that have high silica contents.."*, such as granite have higher ^{87}Sr / ^{86}Sr ratios while younger rocks like basalt have lower ^{87}Sr / ^{86}Sr ratios.[245] The ratio of geologically younger rocks is documented around 0.706, for basalt to 0.704 and the isotopic composition of ocean in terms of ^{87}Sr / ^{86}Sr ratio is 0.7092.[246]

As the strontium is present in the geological environment, it enters into the plant and animals and thereby enters into the human hard tissue as a part of the diet.[247] It is also understood that due to the similarities in chemical reaction and atomic radii of strontium and calcium, the former replaces calcium, *"….in the crystalline lattice of hydroxyapatite in teeth and bone."*[248] Hence, *"…the bone strontium content and isotopic composition will reflect the isotopic composition of the geological region in which a person lived before death."*[249] The bone regenerates and grows over a period of time when compared to teeth, which stops absorbing elements from the environment after its formation. Thus, the analysis of tooth enamel for strontium concentration and isotope ratios will reveal the geological environment of the person during the formation of tooth.

The analysis for archaeological samples for strontium concentration and isotope ratios consists of determining the known ratios from the geological

environment and faunal tooth, preferably pigs and then comparing it with the samples from archaeological record.[250] The practice is also comparing ratio values of each individual tooth with a known local value[251], which enables to define *"…. 'locals' may include people who moved between similar geochemical provinces, and 'non-locals' may include those whose diet catchment extended beyond the local area."*[252]

Lead Isotopes

In the nature, Lead (Pb) consists of four stable isotopes, namely ^{204}Pb, ^{206}Pb, ^{207}Pb, and ^{208}Pb, which are present since the time of formation of the earth. Among these, only three are radiogenic isotopes, namely ^{206}Pb, ^{207}Pb, and ^{208}Pb that are the decay products of decay chains known as uranium, actinium and thorium series respectively. These are the products of radioactive decay from the parent isotopes, namely, ^{235}U (half-life of 7.04×10^8 years), ^{238}U (half-life of 4.47×10^9 years) and ^{232}Th (half-life of 1.401×10^{10} years). The geologists have extensively used the lead isotopes for dating the rocks and subsequently evolution of the earth itself due to the long half-life periods. Among the four isotopes of lead, the fourth one, ^{204}Pb is non-radiogenic, remained a constant almost since the formation of earth, and hence used as a reference isotope while measuring the other three.[253] Due to the radioactive decay of the three isotopes of lead (^{206}Pb, ^{207}Pb, and ^{208}Pb) their quantity (occurrence) varies from deposit to deposit and geological formations depending upon their origin and antiquity, which ultimately leads to geological origin of lead. The comparative ratios of various isotopes with ^{204}Pb help in geological sourcing and it has been noticed that geological older deposits have different ratios when compared with younger deposits.

The isotopes of lead are also useful for provenance studies similar to strontium isotopes. Lead also substitutes for calcium in the hydroxyapatite of skeletal tissues and similar to strontium the calculation of its abundance in bones and teeth is proportionate to the diet.[254] The study of lead isotopes for provenance studies and human migration patterns is extensively practiced to determine lead sources and also sources of lead exposure.[255] The analysis of enamel and dentine portions of the tooth helps in understanding the exposure to lead levels during various stages of growth of a human,[256] as the teeth stops absorption after formation.

The lead isotope studies, along with Sr, thus helps in identifying the provenance during various stages of life of an individual based on the analysis of

milk and permanent teeth, which can be interpreted to infer the mobility of past populations. However, it is also felt in south Asian context that the intake of lead in antiquity as *surma* (eye-liner) may influence the Pb ratios. In such a scenario, the lead artefacts occurring from the archaeological deposits from similar levels may add invaluable data on the provenance of galena, which was a major lead ore used in antiquity, particularly from the Harappan context.

Carbon and Nitrogen Isotopes

The carbon and nitrogen isotopes are also useful in understanding the diet by analysing bone collagen and dental enamel. In the archaeological context, Tauber while analysing the transition from Mesolithic used the study of stable carbon isotope studies for understanding the palaeo-diet and Neolithic during which the dependency on marine foods reduced.[257] Pate put forth that *"…..dietary information is recorded by carbon and nitrogen isotope ratios in bone collagen and by carbon isotope ratios in the carbonate component of the inorganic calcium phosphate portion of bone and tooth enamel."*[258] As mentioned above, bone is subjected to alteration in composition during postmortem conditions and hence less reliable when compared with tooth enamel wherein the minerals are preserved for a longer period. The non-porous and larger apatite crystal size of tooth enamel is attributed as a reason for its resistance to alteration during postmortem environments.[259] The isotope ratios of carbon and nitrogen are expressed as *"…delta (δ) values in parts per million (%$_0$) relative to the isotopic composition of standards."*[260]

Carbon Isotopes

The isotopes of Carbon in the nature consist of two stable ones, viz., ^{12}C & ^{13}C and one radioactive, ^{14}C. Among the stable isotopes, ^{12}C is the most commonly occurring one in nature (98.89% of global carbon) and ^{13}C comprises 1.11% of carbon.[261] Due to the photosynthesis mechanism, all the three isotopes of carbon enter into the food chain of the terrestrial and aquatic plants. The isotopic composition varies from plants to plants depending upon the carbon used in the photosynthesis. This is due to the use of atmospheric carbon by terrestrial plants, dissolved inorganic carbon by aquatic plants and hence the values of $\delta^{13}C$ vary from 0%$_0$ for marine and -5 to -10%$_0$ for riverine waters.[262] The $\delta^{13}C$ values of freshwater aquatic plants and terrestrial C_3 plants are almost similar, while the values for marine aquatic plants are considerably higher due to the variation in atmospheric CO and marine bicarbonate.[263]

C_3, C_4 and CAM are the three distinct photosynthetic pathways used by terrestrial plants due to which typical $\delta^{13}C$ values are produced.[264] The plants that use C_3 are *"….all trees, most shrubs and herbs, and temperate cool-season grasses….most plants used as food by humans are in the C_3 group…. C_3 plant foods include barley, wheat, rice, beans, tubers (manioc, cassava, potatoes) and nuts. C_4 plants include tropical and warm-season grasses and a few shrubs……Maize, amaranth, sorghum, sugarcane, and some millets are examples of C_4 plant foods. CAM photosynthesis is restricted to arid-land succulents, e.g., cacti, agave, and some euphorbs."*[265]

The passage of the various kinds of plants into the diet of humans either directly or through animals is preserved in the tissues of those who consume them in terms of $\delta^{13}C$ values. By analysing the $\delta^{13}C$ values, the particular diet consumed by the humans, animals can be understood, and hence the palaeo-diet reconstructed. The bone collagen and human tooth enamel are normally used for the analysis.

Nitrogen Isotopes

The other element, which is useful in reconstructing palaeo-diet, is Nitrogen (N_2). The stable isotope ratio analysis of nitrogen along with carbon from the bones of archaeological deposits helps in *"….direct measure of the diet of an individual."*[266] There are two stable isotopes of N_2 namely, ^{15}N and ^{14}N. The commonly occurring form is ^{14}N, which makes up to 99.636% of natural nitrogen. The $\delta^{15}N$ values from the archaeological samples are measured in relation to ^{14}N in order to determine the variations. The source of nitrogen for the terrestrial and aquatic plants varies according to the fixing agents.

While for the fresh water and marine plants, the source of nitrogen is bacteria and blue-green algae, in respect of the terrestrial plants, it is "….(1) bacterial N_2 fixation, (2) bacterial decomposition of organic matter, and (3) atmospheric precipitation."[267] The $\delta^{15}N$ values also vary according to the nitrogen source and the typical mean value for *"….terrestrial plants that fix atmospheric nitrogen are +1%$_0$ with a range of -2 to +2%$_0$; …plants that obtain their nitrogen from the ^{15}N-enriched soil solution nitrate and ammonium ions have mean $\delta^{15}N$ values of about +3%$_0$, with a typical range of 0 to +6%$_0$."*[268] Similarly, there are variations in the mean $\delta^{15}N$ values vary for the marine plants (*+7%$_0$*) and the non-N_2-fixing terrestrial plants (*+3%$_0$*) and there is an overlap of values of both groups.[269]

Similar to the other isotope analysis and based on the principle of passing on isotopic concentrations in the food chain, the analysis of bone collagen from both humans and animals helps in reconstructing the broad diet patterns.

Oxygen Isotopes

The most abundant element on earth is Oxygen (O_2) and it occurs in the form of three stable isotopes, each having eight protons. They are ^{16}O (99.76%), ^{17}O (0.04%) and ^{18}O (0.2%). The various processes that modify the oxygen isotope ratios in natural waters are evaporation, condensation, mixing and exchange reactions.

Among the three isotopes of oxygen, ^{18}O has been observed to be a constant in the ocean waters as it holds 97% of the world's water, and hence $\delta^{18}O$ is treated as a standard for isotopic measurements.[270] Due to evaporation of the ocean water, ^{16}O escapes easily compared to heavier ^{17}O and ^{18}O and the *"…..water vapour over the ocean to have an isotope value of around -13%."*[271] The repeated condensation and precipitation as the water vapour travels towards higher latitudes and colder regions alters the isotope ratio values. Therefore, various factors that affect the geographic distribution of $\delta^{18}O$ ratios are *"….latitude, altitude, distance from the ocean, amount of precipitation and surface air temperature."*[272] The oxygen isotopic ratios are also modified and altered due to seasonal variations.

Through the analysis of oxygen isotope ratios, the local climate wherein the individual or animal lived can be understood. Further, if groups of individuals are studied in terms of the climate they lived in, their mobility and provenance can also be understood.[273]

The other isotopes that can be studied in terms of reconstructing and understanding the palaeo-diet and palaeo-environment are Sulfur (S), Barium (Ba), Magnesium (Mg), and Zinc (Zn).[274]

5.5.5.2 Bio-archaeological investigations of Sanauli remains

It is with the above basic background on the application of various isotopic analyses; the studies carried out using Sanauli samples are given briefly here. The human skeletal remains discovered from the primary and primary-disturbed burials of Sanauli were subjected to bio-archaeological investigations for the analysis of Sr,

Pb, C and O isotopic ratios. In this regard, the sample consisted of enamel portion of the various molar teeth of different individuals.

The sample dataset consists of 59 teeth from 29 individuals with a distribution of 23 first molars, 22-second molars and 13 third molars. First molar enamel mineralizes between birth and 3 years of age; second molars between three and six years. Third molars are the most variable, forming anywhere between seven and thirteen years, but mineralization does not usually take much longer than three years. The analyses were carried out in the Departments of Anthropology and Geological Sciences under the overall guidance of John Krigbaum, Benjamin Valentine (both of Department of Anthropology) and George Kemenov, Jason Kurtis (both of Department of Geological Sciences).

Sample Collection

The first step involves in the proper and correct identification of the tooth that needs to be sampled. A drill with a proper saw blade is normally used to saw the desirable portion from the selected tooth sample. The tooth is cut from the top of the cusp where the enamel is thicker than the sides to have a desirable portion. Normally a 50 mg is required from each tooth as various isotopic analyses can be carried out using a single sample. The samples are weighed and labeled, put inside plastic sealed bags or vials and a detailed sample list prepared after collection of samples from all the desired teeth.



Fig. 5.383: Mandible from skeleton of Burial 80 from which sample was collected



Fig. 5.384 a



Fig. 5.384 b



Fig. 5.384 c

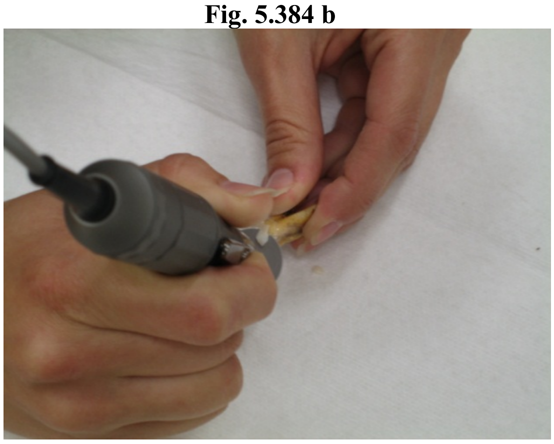


Fig. 5.384 d

Fig. 5.384 (a – d): Various stages in sawing the tooth for collecting the sample

Sample Preparation



Fig. 5.385 a



Fig. 5.385 b

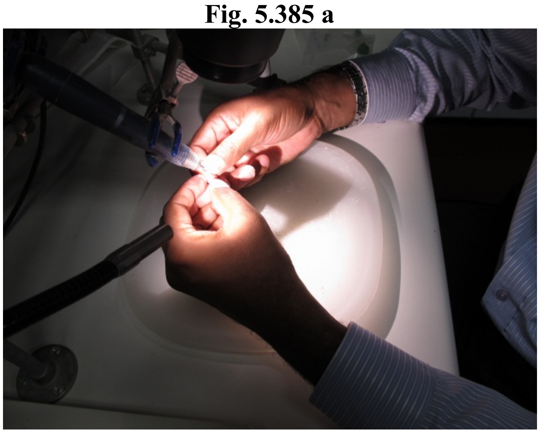


Fig. 5.385 c



Fig. 5.385 d

Fig. 5.385 (a – d): Cleaning operation of tooth enamel for extraction of sample

The sawed portion of the tooth enamel is cleaned of the dirt and any discoloured portion on the surface. Any portion of dentine sticking to the enamel is also removed and further cleaned. The cleaning operation is carried out using a drill. The cleaning operation consists of viewing the enamel portion with the aid of a binocular microscope, along with the sample properly illuminated.

The motorized electrical drill was used for cleaning using various thicknesses of drill tips depending upon the portion to be cleaned. The cleaning operation is carried out until all the dark spots, discoloured portions and dentine is clearly removed from the surface of enamel. The cleaned surface becomes completely white after removal of all such unwanted portions.

The cleaned portion of the enamel is then weighed and fragments are separated so that individual fragments can be used for different isotope analyses. Fragments approximately weighing 10 mg each are sufficient for both lead and strontium isotope analysis and one more fragment weighing 10 mg is used for carbon and isotope analysis. The fragments thus separated are properly labeled and kept in separate plastic vials in plastic trays.

Procedure for sample preparation for Pb isotope analysis

The Pb from the sample is to be separated and each lab standardizes its procedure for Multi-Collector Inductively Coupled Plasma Mass Spectrometry (MC-ICP-MS) measurements. The University of Florida adopts the following procedure for separation of Pb using columns with a stem, which is a modified and simplified format of the Thermally Ionised Mass Spectrometry (TIMS) HBrPb separation.

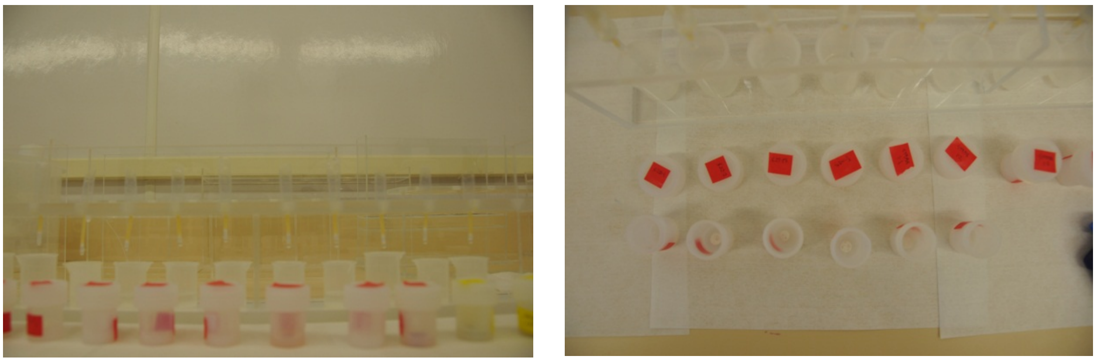


Fig. 5.386: Columns with stem for extraction of Pb sample

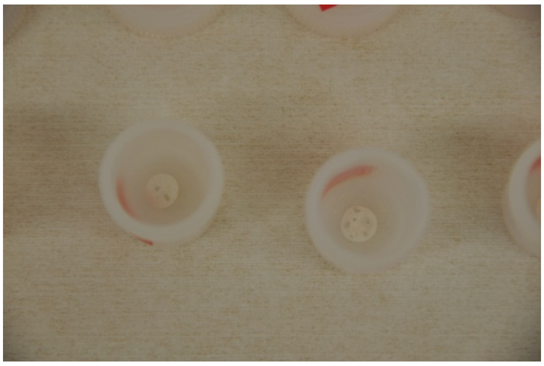


fig. 5.387: Separated Pb sample from a tooth enamel



Fig. 5.388: Multi-Collector Inductively Coupled Plasma Mass Spectrometry (MC-ICP-MS), University of Florida

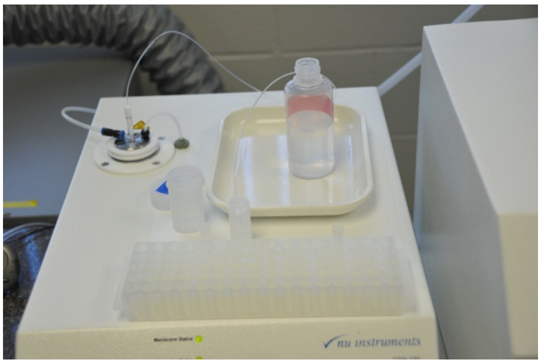


Fig. 5.389: Pb sample being loaded into the MC-ICP-MS

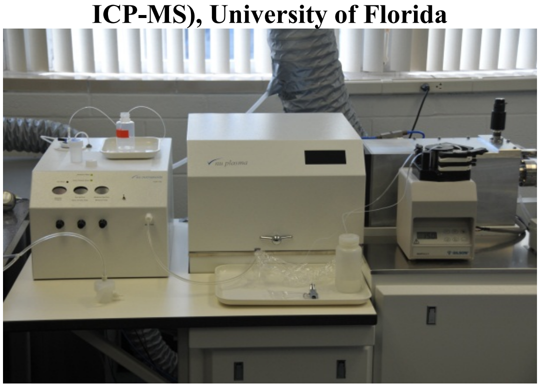


Fig. 5.390: Pb sample being loaded into the MC-ICP-MS

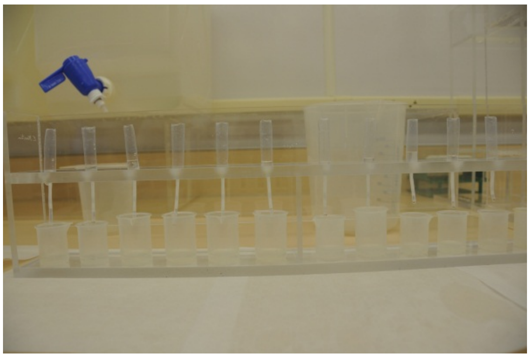
The sample identified for Pb isotope analysis is dissolved in 100 µl - 200 µl 1N Hydrogen Bromide (HBr) and set aside separately in plastic vials, which are prepared for this procedure by cleaning in de-ionised water. The columns are loaded in tray holders depending upon the number of samples to be collected and plastic vials placed underneath each column for collection. The columns are packed with a stem (resin body) volume above 100 µl with lead separation resin (Dowex IX-8 resin). The dissolved sample is then loaded in the columns. The column is then washed every hour with 1 ml 1N HBr. This process is repeated three times and the Pb fraction is collected in 1 ml 20% HNO_3 (optima grade). The solution is then put on a hot plate for evaporation and the pure Pb is separated and collected in the vial.

After Pb separation and evaporation, the samples are re-dissolved in approximately 300 µl of 2% HNO_3 (optima grade) solution spiked with approximately 2 µl of ICP (Thallium) Tl stock solution. Each sample was then analyzed on the Nu-Plasma MC-ICP-MS in the Department of Geological Sciences at the University of Florida. Each sample solution was aspirated through a Nu-instruments desolvating nebulizer (DSN-100) ("dry plasma" mode) at the original dilution. If Pb beam intensity exceeded acceptable parameters, then the sample was diluted further using additional 2% HNO_3 (optima grade) solution and a

proportionate quantity of the Tl spike until the Pb beam intensity reached the desired analytical range (approximately 1-10V for ^{208}Pb). The readings obtained from the ICP-MS are utilised for final analysis and interpretation.

Procedure for sample preparation for Sr isotope analysis

The separation procedure for Sr isotope analysis also involves column procedure similar to Pb separation. The sample segregated and kept aside for Sr isotope analysis is dissolved in clean acid like 1 – 2 ml of 0.25 – 1 M HCl. The sample is then kept on a hot plate and allowed to dry overnight to obtain the undissolved clear sample.



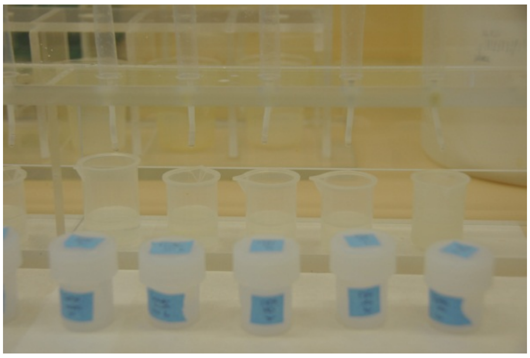


Fig. 5.391 & Fig. 5.392: Column stems for seprating Sr

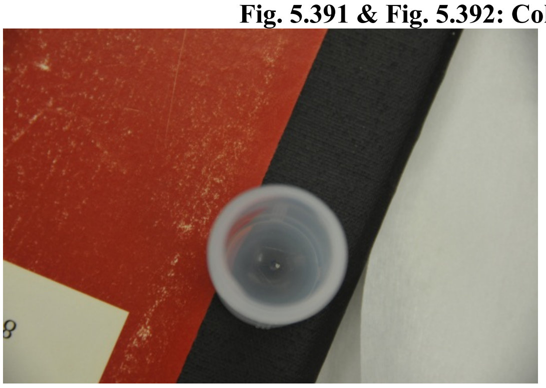


Fig. 5.393: Separated Sr in the vial

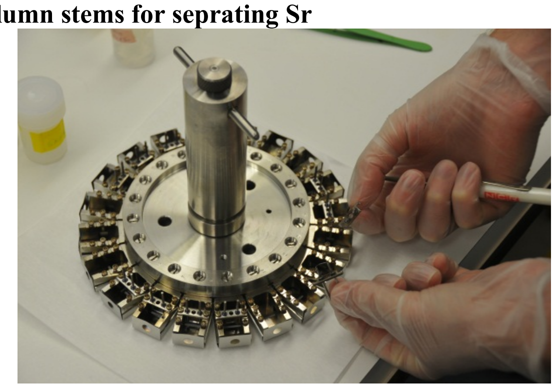


Fig. 5.394: Bead holder for TIMS



Fig. 5.395: Parafilm platform for preparing solutions of H_3PO_4 and Ta-oxide

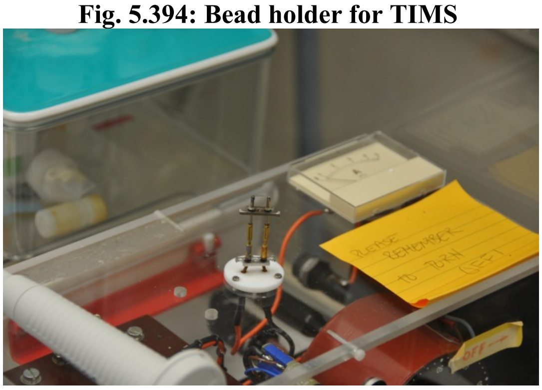


Fig. 5.396: Bead placed in the specially designed heating system

The sample is again re-dissolved before the column chemistry using 100 µl of clean 3.5 N HNO_3. The columns with a stem (resin bed) of volume of 100 µl are used for Sr separation. The column is loaded with Sr Spec resin and it is packed

consisting of the following procedure: (1) suspend the Sr spec resin in purified water in a dropper bottle or squirt bottle; (2) fill the column with purified water (including the stem without any air bubbles); (3) drop or slowly squirt the resin suspension into the column so that the resin settles in the stem and (4) pipet out the excess resin and water once the stem is filled.After the column is loaded with Sr spec resin as per the above procedure, the dissolved sample is loaded in 200 µl of 3.5 N HNO_3 after equilibrating 2 ml of 3.5 N HNO_3. The column is then washed every 10 minutes with 100 µl of 3.5 N HNO_3 and the process is repeated for four times. Finally, the column is again washed with 1 ml of 3.5 N HNO_3. The vials are collected after one hour, 1.5 ml of 4 X H2O is added to bleach out Sr, and it is allowed to evaporate to dry the solution. The dried solution allows settling the available Sr to settle at the bottom of the vial, which is used for isotope analysis.

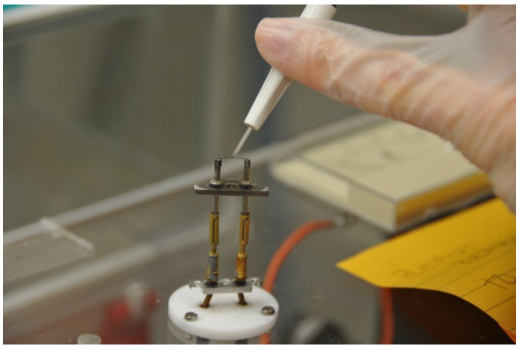


Fig. 5.397: Placing the solution and sample on tungsten film

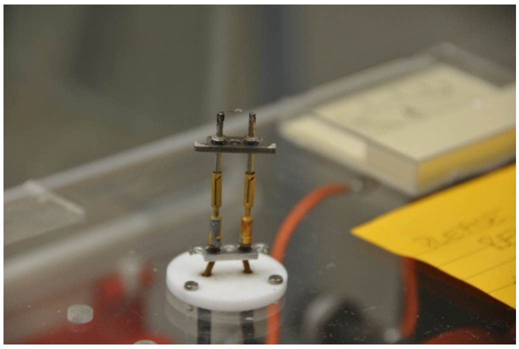


Fig. 5.398: Sample on tungsten film

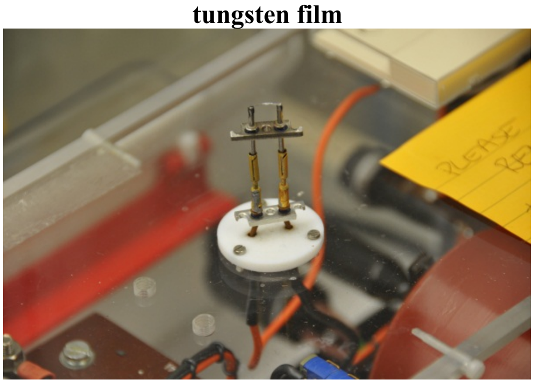


Fig. 5.399: Sample heated on the film

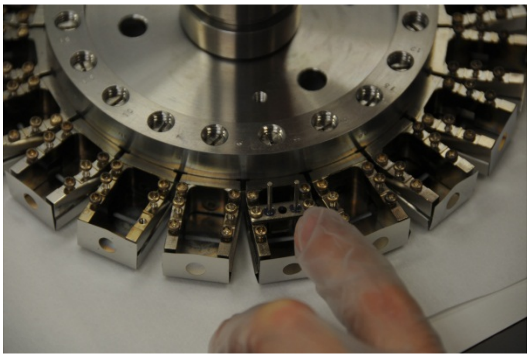


Fig. 5.400: Loading of bead

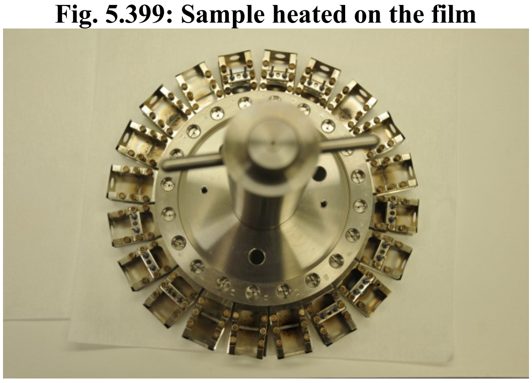


Fig. 5.401: Beads loaded in bead-holder

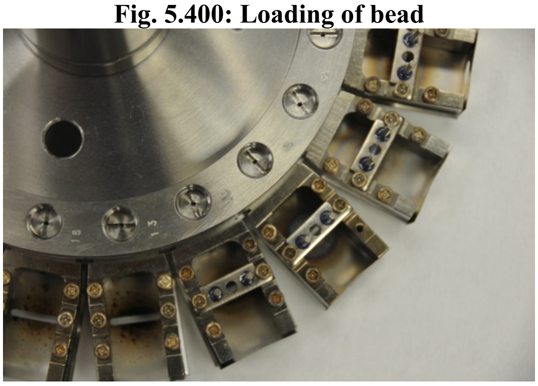


Fig. 5.402: Beads loaded in bead-holder

After the collection of Sr, the columns are cleaned by washing out the resin with the aid of a squirt bottle of clean H_2O specially prepared for this purpose. The columns are soaked in a container containing clean 3N HCl and then stored in clean H_2O.

The Sr sample loading for the TIMS measurement consists of placing a bead loader having individual beads with a tungsten film inside the TIMS equipment. The first step involves the cleaning the tungsten film of the beads after previous use and keeping it ready for sample loading. On a separate platform of non-sticky parafilm, phosphoric acid (H_3PO_4) and HCl are added together and mixed well using a small pipet.

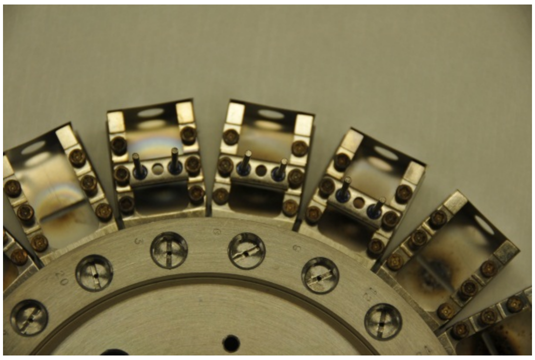


Fig. 5.403: Close-up view of beads in bead-holder

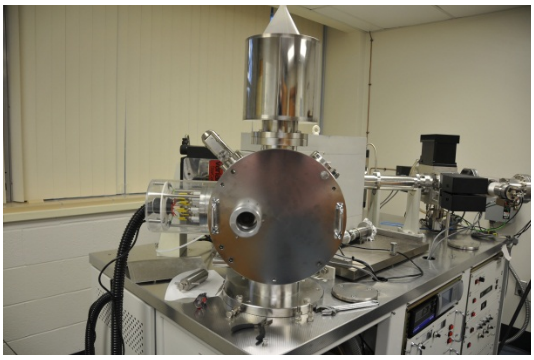


Fig. 5.404: Bead-holder loading place in the TIMS equipment

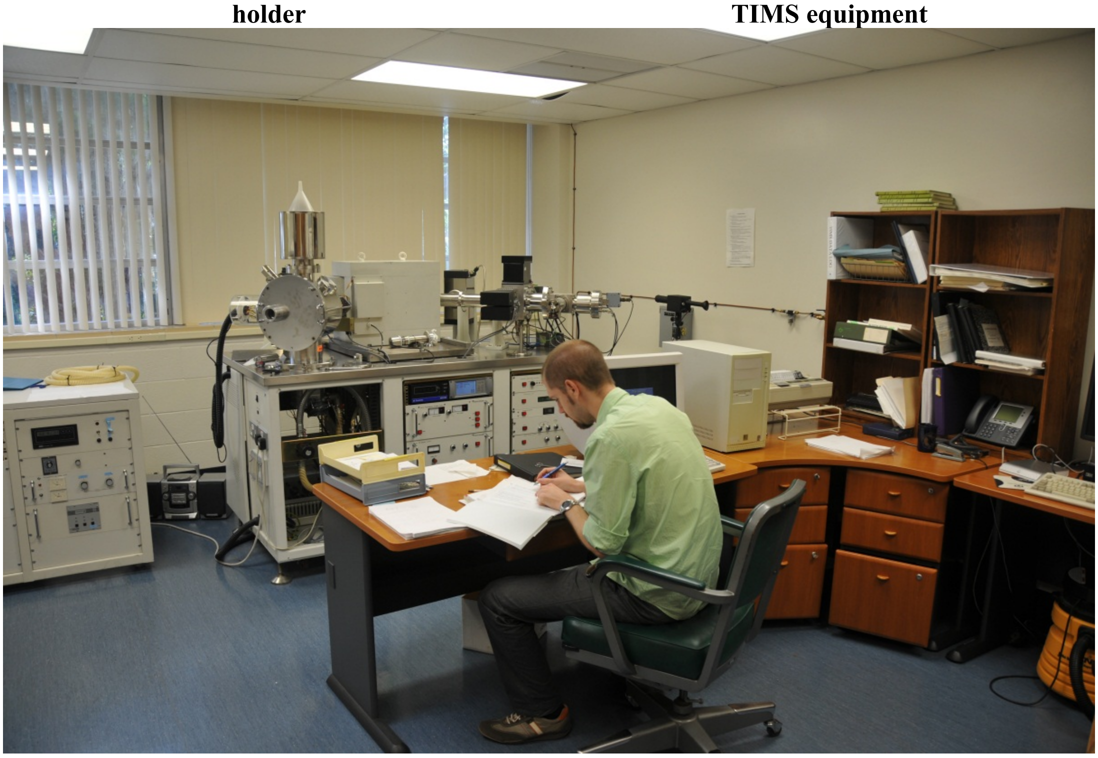


Fig. 5.405: TIMS lab in the Department of Geological Sciences, University of Florida

Tiny drops of Tantalum-oxide is also added on the platform and then mixed well with the aid of a pipet. A solution of 2 drops (2 µl) 1N HCl is added directly on

the tiny Sr sample placed inside a sample vial using a special pipet which can intake only 1 µl of HCl at one time. The beads holding the tungsten film is loaded in a specially designed stand through which the film can be heated to the desired current strength. Over this film is loaded 0.5 µl of H_3PO_4 is placed at the centre and allowing it to heat with 1.5 amp current strength.

Over this H_3PO_4 solution, which now starts to spread gradually, 1 µl of Tantalum-oxide, is added in two installments of 0.5 µl each. After a wait of 30 seconds, 1 µl of sample in two installments of 0.5 µl each is placed on the spread solution and at the centre of the film using the special pipet.

Then the current strength is increased up to 4 amp through which the tungsten filament is headed and the sample spreads evenly all along the film and ultimately just dissolves into it. The dial of the current control is turned to zero and the bead is taken out and loaded into the bead holder. Once all the required beads are loaded in the bead holder, it is placed in the TIMS machine for analysis and taking readings.

Procedure for sample preparation for C and O isotope analysis

In order to prepare the sample to analyse it in a Gas Chromotography Spectrometry for C and O isotopes, the following sample procedure is adopted by University of Florida. The initial sample preparation was carried out in the Department of Anthropology itself and then transferred to the Department of Geological Sciences for loading in the machine. A portion of the cleaned enamel segregated and kept aside from the original sample is utilised for C and O isotope analysis. The enamel portion is cleanly grinded and a fine powder is obtained with the aid of an agate pestle and grinder. Two sets of pestle and grinders are used at a time as every time of grinding operation, one set is cleaned involving the following steps:

(i) clean and wash the pestle and grinder with a lab soap called Alconox;

(ii) a solution of 50% HCl is poured in the pestle depression and the grinding portion is totally immersed in the solution;

(iii) the second set of pestle and grinder is used while the immersed one is left for 15 minutes;

(iv) after 15 minutes, the HCl solution is poured away and rinsed in clean water followed by rinsing with de-ionised water and then

wiped clean without any water remains. The grinder and pestle can be used again for grinding the sample. The same procedure of cleaning is used after each grinding process.

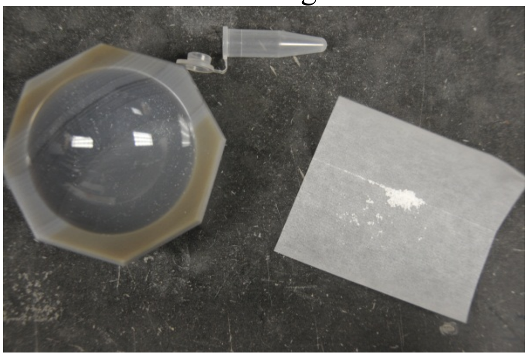


Fig. 5.406: Agate pestle and powdered enamel

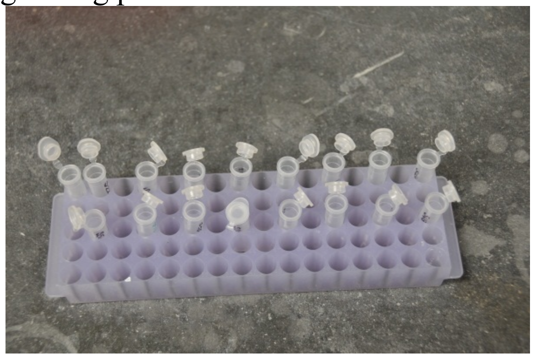


Fig. 5.407: Vials with samples in vial rack



Fig. 5.408: Vials vibrated in a vibrator



Fig. 5.409: Centrifuge for isolating bleach

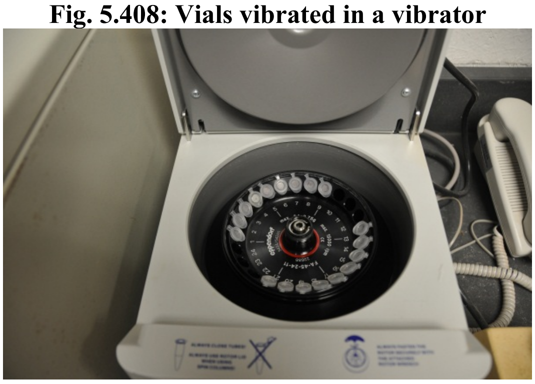


Fig. 5.410: Vials in a centrifuge

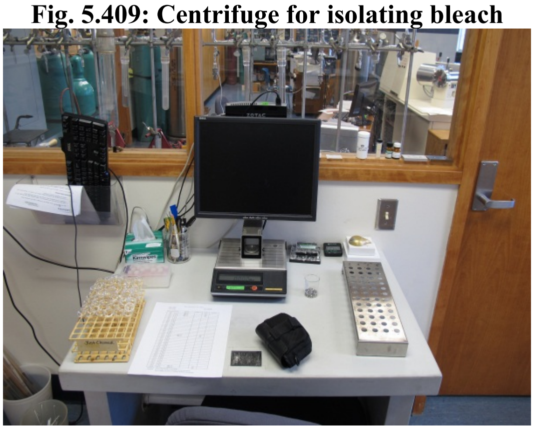


Fig. 5.411: Weighing machine for the sample preparation

The fine powdered enamel was transferred into a clean vial and labeled for further sample preparation. The vials were filled with 50% sodium hypochlorite (NaOCl) solution for carrying out the bleaching operation. Then the vials were vibrated in a mechanically operated vibrator for completely mixing the powdered enamel in the bleaching solution. The process was repeated for all the vials containing samples. The vials containing the solution were kept in a vial rack for 16 hours, usually during overnight. The vials were placed in a centrifuge after 16 hours and operated at 15000 rpm for about 15 minutes. This operation separates the bleach from the enamel. The bleach was then carefully removed through a syringe and

double rinsed after every removal. Then clean water was added to the sample in the vial after the complete removal of bleach. The vials were again vibrated mix it completely with water. The mixed sample was put in a centrifuge and the process repeated as described above. After three or four repetitions, the pH value of the solution is tested, and the process repeated again until neutral value is reached. Once the neutral value is reached, the water is removed finally and vials kept for nearly five years. After this process, acetic acid (0.1 M) was added and agitated in the vibrator and kept aside for 16 hours.



Fig. 5.412: Sepcial metal containers in which the sample is weighed



Fig. 5.413: Vials in which the samples are transferred

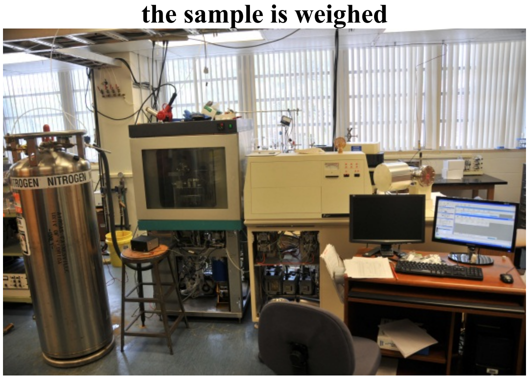




Fig. 5.414 & Fig. 5.415: VG / Micromass PRISM Series II isotope ratio mass spectrometer, Department of Geological Sciences, University of Florida

The vials were removed from the vial rack after 16 hours and clean water was added, vibrated in vibrator and centrifuged for 15 minutes @ 15000 rpm. The water was removed and the process was repeated for three more times. The samples in the vials were kept in a vacuum chamber for a minimum of 48 hours, in order to remove all the water content from the sample. After a lapse of 48 hours, the vials were removed from the vacuum chamber and checked for the presence of any moisture / water content. If there is no moisture / water content in the vials, the sample in the powder form is ready for loading in the sample loader for C and O isotope analysis. Samples were measured using a VG / Micromass PRISM Series II isotope ratio mass spectrometer with an Isocarb common acid bath preparation

device. Samples were loaded into stainless steel boats and placed into a 44-position Isocarb preparation system. Samples were reacted in a common acid bath at 90^0 C and water was cryogenically removed in methanol slush. Evolved CO_2 gas was measured online with a VG / Micromass PRISM Series II isotope ratio mass spectrometer at the University of Florida. All isotope results are reported in standard delta notation relative to Vienna Pee Dee Belemnite (VPDB) Analytical precision (1 standard deviation of standards run with samples) is generally better than ±0.1‰ for $\delta^{13}C$ and 0.1‰ for $\delta^{18}O$.

5.5.5.3 Results from the stable isotope analyses of Sanauli samples

The results obtained from various stable isotope analyses in the Department of Geological Sciences, University of Florida are discussed below. The interpretations and analogies based on databases from other sites yielding Harappan population from South Asia are by Benjamin Valentine (personal communication).

Results from $\delta^{18}O$ plot by molar type

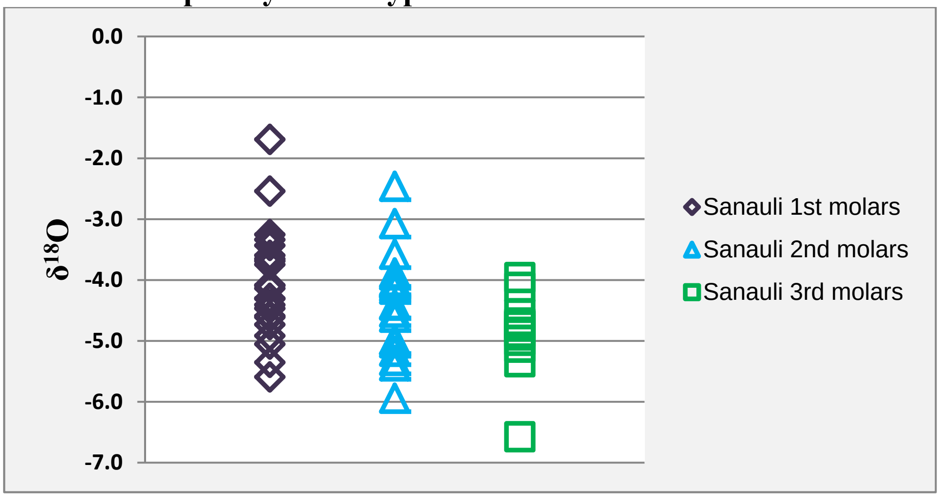


Fig. 5.416: Plot showing $\delta^{18}O$ by molar type

The above plot shows the $\delta^{18}O$ in terms of molar type of individuals. The plot shows a shift over developmental time in oxygen isotope values which may be linked to the weaning process. It is also well documented that breast milk is more enriched in ^{18}O relative to ^{16}O, and hence a higher value of $\delta^{18}O$. The lowest values for the third molars may be attributed to the fact that during their formation sometime between 7 and 13 years of age, people were not getting most of their water from breastfeeding anymore. It is also observed from the plots that the difference between the mean values for second and third molars is greater than the difference between first and second molars. This suggests that on an average, individuals began to get the bulk of their water from other sources relatively late in the mineralisation

process of second molar enamel closer to 5 or 6 years than for the first molar around its formation during 3 or 4 years. It is also to be kept in mind that this is an average of the entire mortuary population.

The difference in $\delta^{18}O$ values varies from individual to individual or any given tooth is due to four main reasons:

(i) different timing of the weaning process;

(ii) a significant change in annual rainfall (heavier rains result in lower $\delta^{18}O$);

(iii) different water management practices (boiled or otherwise evaporated water such as that in boiled foods and

(iv) oxbow lakes will have higher values of $\delta^{18}O$ than fresh river water), or because that individual migrated from a place with a different climatic regime (and therefore different $\delta^{18}O$).

Results from $\delta^{13}C$ plot by molar type

From the plot shown below at Fig. 5.417, it may be observed that there is no apparent shift in the relative amounts of C_3 and C_4 foods over time. The values in the plot also indicate that the among the population at Sanauli, some people were probably not consuming any millet (the primary archaeological South Asian crop that creates carbohydrates using the C_4 photosynthetic pathway), and some others were probably eating a small amount of millet. Some of the fluctuation in carbon isotope values (approximately between -10 and -14 per mil) might also be explained as due to heat stress. C_3 plants (including wheat and barley) can shift a couple per mil more positive when under hot and dry conditions, but heat stress probably cannot explain the full range of values.

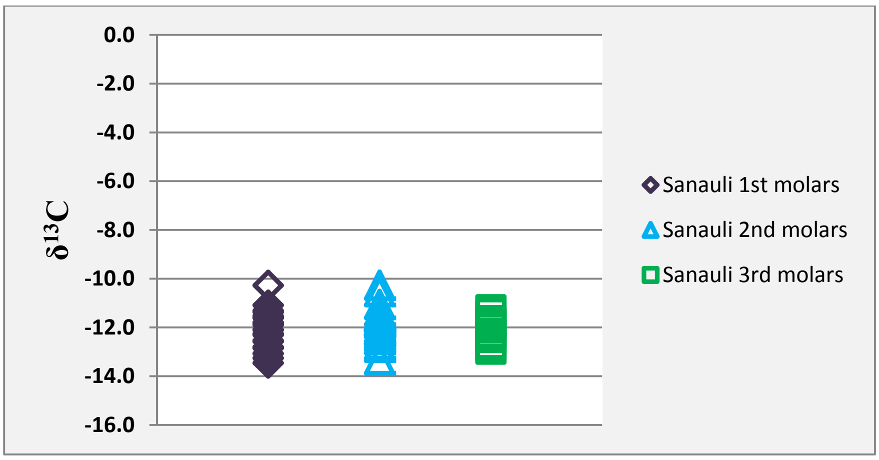


Fig. 5.417: Plot showing $\delta^{13}C$ by molar type

Lead isotope ratio plots (^{206}Pb / ^{204}Pb against ^{208}Pb / ^{204}Pb and ^{206}Pb / ^{204}Pb against ^{207}Pb / ^{204}Pb)

The plots of ^{206}Pb / ^{204}Pb against ^{208}Pb / ^{204}Pb and ^{206}Pb / ^{204}Pb against ^{207}Pb / ^{204}Pb indicate that the wide spread of data relative to the small range of values for the local soil probably indicates that people are coming from outside the local area. It is to be noted here that the soil samples are actually soil leachates. In order to mimic the *'biologically available'* lead (or strontium), the soil sample is soaked in a weak acid on a hotplate for a couple of hours. It is also to be kept in mind that the plants and animals are unable to absorb all of the lead and strontium out of the minerals we ingest and only the soluble portion becomes part of the food chain.

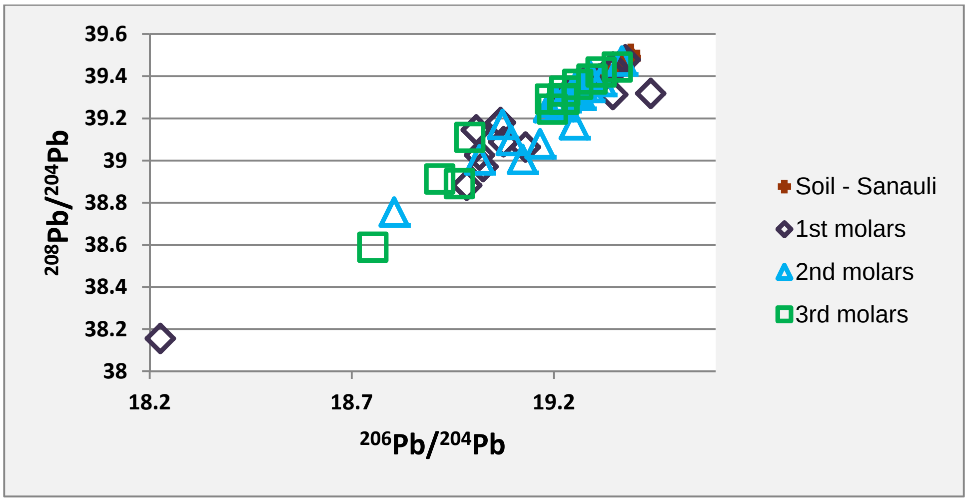


Fig. 5.418: Plot showing ^{208}Pb / ^{204}Pb against ^{206}Pb / ^{204}Pb

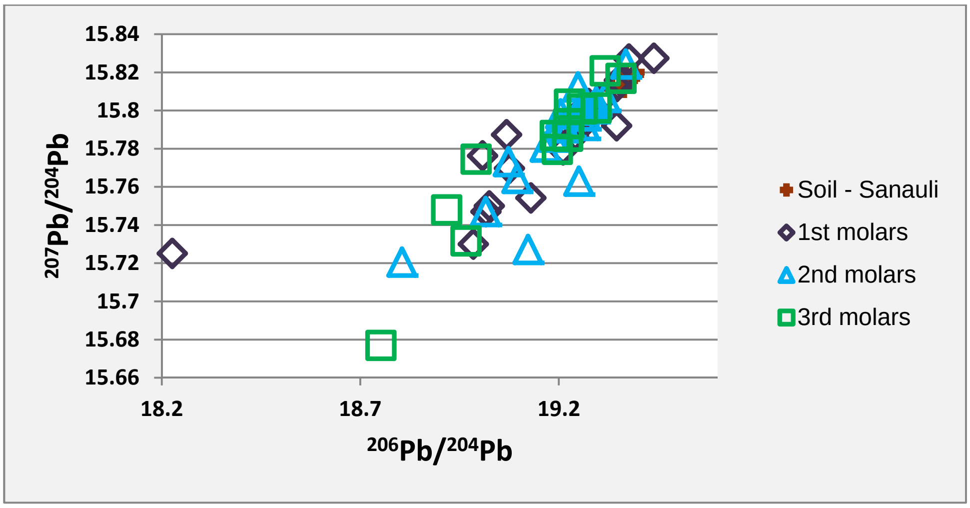


Fig. 5.419: Plot showing ^{207}Pb / ^{204}Pb against ^{206}Pb / ^{204}Pb

Therefore, it is understood that the soil leachates are not a perfect approximation of local values and hence the archaeological animals may provide a better estimate, even though not perfectly. In order to determine between the 'locals'

and 'non-locals' it is necessary to compare all three sets of data (soil, non-migratory animal, and human) and look for the cluster of human data that intersects the soil and animal data. Certain mathematical tests and models are also suggested by some scholars to make the analysis of datasets, which may have to be applied with caution as the values changes from site to site depending on the regional geology. A major conclusion derived from the above plots is that people lived at most of the areas indicated on these plots during all three developmental stages (birth to 3, 3 to 6, 7 to 13). There is no clear indication of migration in one direction only as is indicated in the case of Farmana datasets (under finalisation of results), and individuals move between regions at a variety of ages (as children, young teens, and as adults). It is, therefore possible that people could be moving as entire families or by themselves, which is very difficult to be more specific than that.

Lead (^{206}Pb / ^{204}Pb) against strontium (^{87}Sr / ^{86}Sr) plot by molar type

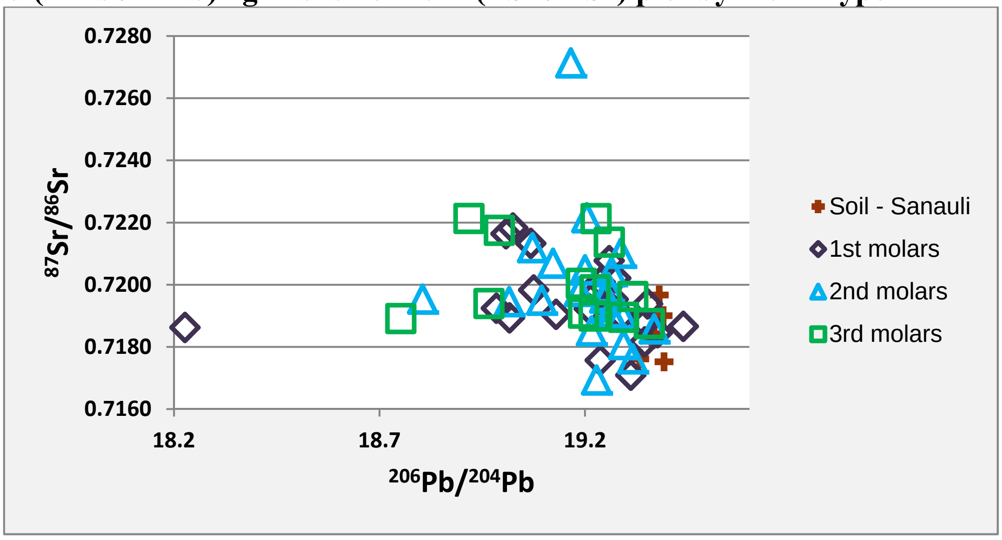


Fig. 5.420: Plot showing ^{87}Sr / ^{86}Sr against ^{206}Pb / ^{204}Pb

The above plot showing Lead (^{206}Pb / ^{204}Pb) against strontium (^{87}Sr / ^{86}Sr) plot by molar type is also similar in many ways as the lead plots. In addition to the information gleaned from the lead plots, the above graph suggests that are two or three major sources of people (and a possibility of cultural interaction) with the local Sanauli area. The major clustering of data at the right side of the graph and the two or three spikes radiating up and to the left probably represent areas with different local geology. The sources of the people coming from different areas is very hard to identify and put on a map until further analyses of archaeological animals from the whole region is carried out along with soil samples. However, it may be surmised at

this stage that there is a possibility of presence of different groups of people at Sanauli coming from different areas. This may also be inferred from the variations in the orientations of burials from the cemetery.

Lead against strontium (^{206}Pb / ^{204}Pb against ^{87}Sr / ^{86}Sr) for each individual

The plotting of lead against strontium helps to track the movement by individuals between sources of different geochemistry. The dotted black arrow in the upper left is used to interpret the direction of movement.

An important aspect to be noted here is that the deciduous teeth form in utero (in the womb) and hence they actually represent the maternal signal. Benjamin has added two circles to the chart, the larger dotted circle is his most conservative estimate of what 'local' is. Every data point outside of that circle is probably 'non-local'. In order to achieve a more comprehensive interpretation, more regional animal data is necessary. Data points between the small solid and large dotted circles might also be 'non-local.' Data points inside the solid circle are most probably local. It has also to be understood that human values in a given region will not look exactly like those for other animals and plants, which will not look exactly like those for soil leachates so determining 'local' is a semi-quantitative process rather than a precise measurement. It can be noticed that there is a lot of movement here and the place where the data points for a given individual look like a small zig-zag, very short line, or a small triangle are probably from individuals that spent the first 13 years of their life in the same place. Longer lines are more likely to indicate movement, especially when they cross over the circles indicated by drawing lines on the plots.

There is a possibility of geological variability in a small geographic space, and hence very difficult to interpret regarding how far individuals might have been moving or from which direction. Benjamin also notes that (personal communication) that a real hypothesis cannot be built up except that the evidence from Sanauli is very much different from those of Farmana or Harappa (and to add, Mehrgarh, Nausharo, Balakot, or Allahdino).

At the end, the arrows that show movement in both the directions, indicates values towards local and away from it. This indicates a possibility of individuals moving away from Sanauli was buried back. It is not possible to interpret whether they were living near Sanauli later in life or whether they were brought back to Sanauli after they died.

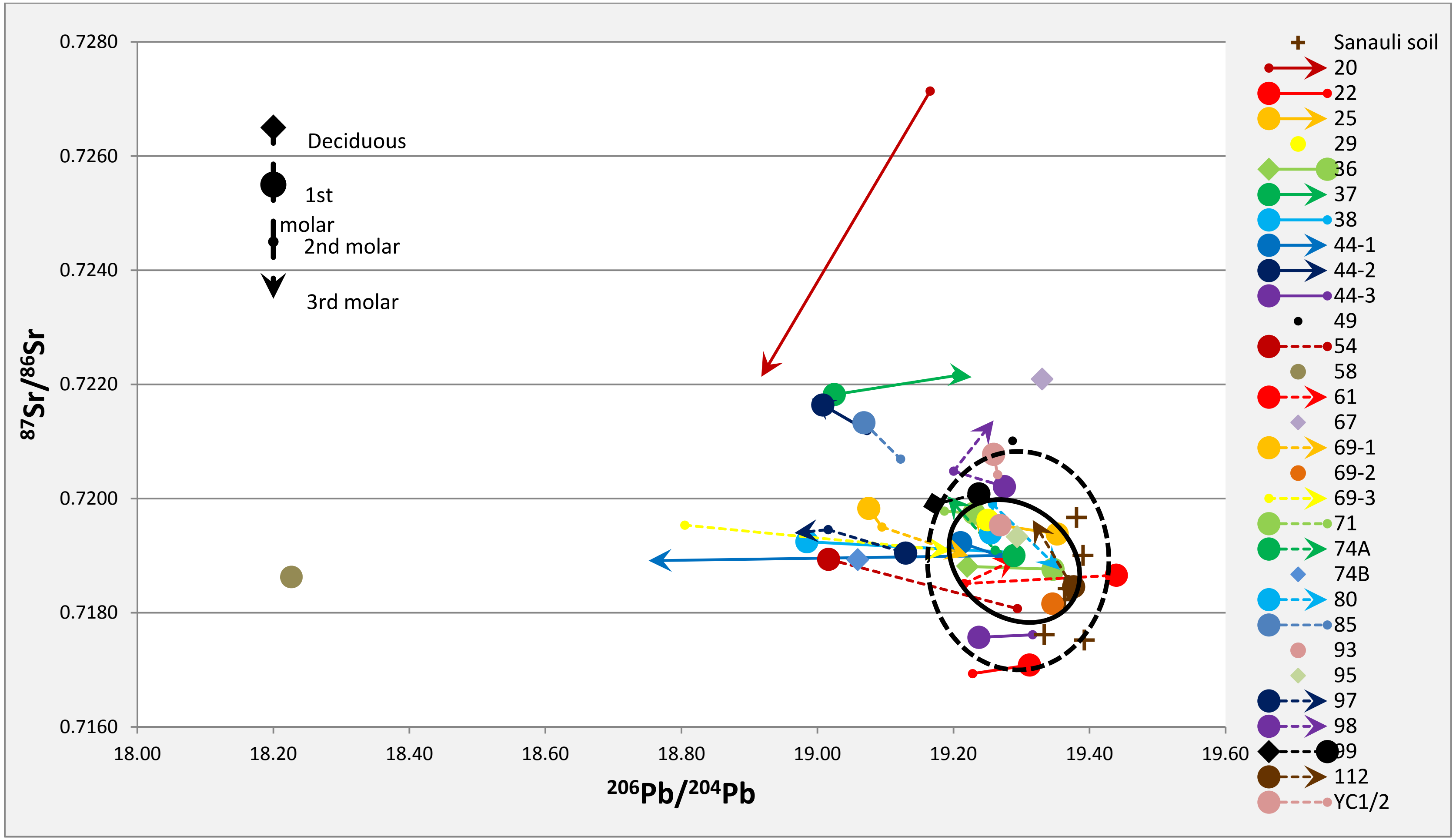


Fig. 5.421: Plot showing ^{206}Pb / ^{204}Pb against ^{87}Sr / ^{86}Sr of each individual

The analyses of well-preserved bones from Sanauli along with stable isotope, the chemical signals from the later years of life can be obtained which will be helpful in resolving the issue of whether people returned to Sanauli before or after death. This is possible because bone remodels during life and constantly takes up the isotope signal from the current environment. This is a highly variable process for different types and portions of bone, so any given bone might represent the last 8 years or maybe even the last 18 years of life. It may be recalled here that teeth, once mineralized, do not exchange isotope ratios with the environment so they continue to represent specific stages in life. They are very much resistant to digenesis and hence any permanent tooth that is fully mineralized is very much reliable. Teeth that are partially mineralized may not be resistant and could become chemically altered after death by exchanging isotopes with the surrounding soil. It is uncertain just how resistant deciduous enamel is because the tooth enamel crystals make a lattice structure that is not quite as tight and regularly patterned as in permanent tooth enamel.

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Chapter – 6

References from Historic Literature on Burial Practices

6.1 Introduction

The study of ancient literature of South Asia is an important source in understanding several aspects related to socio-cultural phenomena of past societies. Even though the exact dating of the earliest Sanskrit literature consisting of the *Vedas, Brahmanas, Upanishads* and *Sutra* is still in a fluid state, the earliest among them, i.e. compilation of *Rigveda* can be definitely dated to the beginning of the second millennium BCE as revealed from the various works in the recent past even though several scholars like Witzel proposes a minimum date of *c.* 1400 BCE. As per Witzel, the traditional divisions of Vedas consist of four *sruti* levels consisting of *Samhita, Brahmana, Aranyaka* and *Upanishad* and the *smriti* level consisting of *Sutra* literature.[1] However, as per Witzel, the literature exhibits a clear linear linguistic development and can be distinguished into five clear levels consisting of the following:[2]

1. *Rigvedic (with many hymns of RV 10 as a late addition);*
2. *'Mantra language' (AV, SV as far as differing from RV, YV Mantras, RV Khila);*
3. *Prose of the Krishna Yajurveda Samhitas (MS, KS / KpS, TS);*
4. *Brahmana language, where the late (and mainly S.-E.) level includes the Aranyakas and the early Upanishads but also the early Sutras such as BSS;*
5. *Sutra language which gradually gives way to Epic / Classical Sanskrit.*

Macdonnel[3] has aptly given the nature of the four *Vedas*. Macdonnel distinguishes three clear literary strata in the literature of Vedic period. The four Vedas have been described as belonging to different periods and are collections known as *'samhitas' "…of hymns and prayers made for different ritual purposes."*[4] The various theories and controversies on the date of the earliest Sanskrit literature of south Asia are not dealt here. Various linguist scholars, historians and

archaeologists differ in their views on placing the geography mentioned in the earliest literature, i.e. *Rigveda* in Central Asia, Afghanistan, Western India, etc. Some scholars like B.B. Lal,[5] Bhagwan Singh,[6] R.S. Bisht[7] advocate that the geography mentioned in *Rigveda* is of the Harappan region. Lal and Bisht discuss the geography along with the importance of River Sarasvati mentioned in *Rigveda* through the following verses:

X. 75.5 & 6

इमं मे गंङ्गे यमुने सरसवति शुतुद्रि स्तोमं सचता परुष्ण्या ।
असिक्न्या मरुद्वृधे वितस्तयार्जिकीये श्रृणुह्या सुषोमया ॥५ ॥
तृष्टामया प्रथमं यातवे सजूः सुसर्त्वा रसया श्वत्या त्या ।
त्वं सिन्धो कुभया गोमतीं क्रुमु मेहत्न्वा सरथं याभिरीयसे ॥६ ॥

O Ganga, Yamuna, Sarasvati, Sutudri (Sutlej) and Parusni (Ravi), O Marudvridha with Asikni (Chenab), O Arjikiya with Vitasta (Jhelum) and Susoma (Sohan), please listen to and accept this hymn of mine. [5][8]

O Sindhu (Indus), flowing, you first meet the Tristama (and then) the Susartu, the Rasa, and the Sveta (Swat), and thereafter the Kubha (Kabul), the Gomati (Gomal), the Krumu (Kurram) with the Mehatnu; and (finally) you move on in the same chariot with them (i.e. carry their waters with you). [6][9]

RV VII, 95.1&2

प्र क्षोदसा धायसा सस्त्र एसा सरसवती धरूणमायसी पूः ।
प्रबाबधाना रथ्येव याति विश्वा अपो महिना सिन्धुरन्याः ॥१ ॥
एकाचेतत्सरस्वती नदीनां शुचिर्यती गिरिभ्य आ समुद्रात ।
रायश्चेतन्ती भुवनस्य भूरेर्धृतं पयो दुदुहे नाहुषाय ॥२ ॥

This Sarasvati (river) gushes forward with her waters and protects all like a metal fortress; with her might, like a charioteer, she surpasses (lit. obstructs) all other waters (rivers). [1][10]

Purest amongst all the rivers and vibrant, the Sarasvati moves on from the mountains to the ocean, manifesting immense riches of the world, she has provided milk and ghee (clarified butter) to Nahusa. [2][11]

The above verses clearly indicate that the River Sarasvati along with other rivers like Ganga, Yamuna and Indus was a major river and is located to the west of River Yamuna and in between the Rivers Yamuna and Sutlej in terms of reference in

RV X.75.5. The verse VII.95.2 also speaks of the River Sarasvati originating from the mountains and ending into the sea. Often these two verses are quoted by scholars to prove the geographic context of *Rigveda*, while other scholars like R.S. Sharma traces the River Sarasvati to modern Afghanistan.

Bisht while discussing the geography of the Rigvedic times, elaborately put forth the various divisions like the (i) the land of seven rivers, (ii) the mountains, (iii) the deserts and (iv) the seas mentioned in the *Rigveda* and tried to correlate the Harappan culture that can be associated with the geographical descriptions.[12] Bisht observes, *"…..the geographical horizon of the Rgveda corresponds well with the geographical extent of the Harappan culture and also, to a large extent, with the pre- / Early Harappan cultures…..no other archaeological culture, excepting the Harappans, is found ubiquitously distributed all over that area until we enter into the era of regular history several centuries later."*[13] The argument put forth by several scholars advocates the contemporaneity of *Rigveda* with the Harappan culture, on the other hand, a group of scholars differ diagrammatically and place *Rigveda* much later after the demise of Harappan Culture. Nevertheless, even if the Vedic literature is placed immediately after the demise of the Harappan Culture, the material culture, geography, metaphysical activities, etc., described in the literature can be correlated with the Harappan Culture, as it can be presumed that a vast and magnanimous culture like that of Harappan, might have definitely influenced even the later period cultures. In this regard, Lal has tried to showcase the continuity of several traditions of the Harappans that have continued till today in many regions of South Asia.[14] It is with this background, the burial practices of the Harappan Culture, with its preceding and succeeding phases which have discussed extensively in the previous chapters, may be correlated with the earliest literature of South Asia to find out any similarities leaving aside the definitive chronology which is non-consensual in nature. Again an argument is put forth here that even if the most conservative dating of *Rigveda* may be considered here, which is around 1800 – 1700 BCE, it coincides with the late Harappan cultures, and hence a continuity is tend to occur and discernible in both the archaeological culture as well the contemporary literature.

The several modes of disposal of dead and burial practices have been compared with the references and commentaries from the ancient Sanskrit literature

of the early and later Vedic periods. In this regard, the interpretations of only Vats, Rao and Bisht have been presented here as the works of the scholars overlap with each other.

6.2 Interpretation by B.N. Datta

One of the earliest attempts to correlate the funeral customs of the Vedic literature with the 'Indus Valley Culture' was by Datta.[15] Datta cites from the *Rigveda* (X.18) and *Satapatha Brahmana* (XIII.8.1.9; XIII.8.2.12; XIII.8.3.11) on the evidence of burials. Through the above verses from *Satapatha Brahmana*, Datta draws attention on the nature of burial pit and its size for various groups prevalent during the period.[16] Datta further cites on the evidence of covering up the burial pits and providing a protection; enclose with stones from *SB* XIII.8.2.12.[17] Further he opines thus while quoting the verse *SB* XIII.8.3.11, *"....let him not make it (the sepulchral mound) too large, lest he make the (deceased's) sin large. For a Kshatriya he may make it as high as a man with stretched arms, for a Brahmana reaching up to the mouth, for a woman up to the hips, for a Vaishya up to the thighs, for a Sudra up to the knee."*[18] Datta, further opines that only dead bodies could have been interred in the pits as they were mentioned according to the *"....size of a man..",* and for ashes or fragmentary bones, it was the urn-burials. Datta cites references from *Asvalayana Grihya Sutras* for the mention of urn burials wherein he mentions as, *"...the gathering (of the bones is performed) after the tenth (tithi from the death) (4.5.1)....A man into a male Urn without special marks, a woman into a female one without special marks. (4.5.2)...Having well gathered them and purified them with a winnowing basket they should put (the urn) into a pit...He should throw earth (into the pit)...Having covered (the Urn) with a lid....they should go away without looking back, should bathe in water, and perform a Sraddha for the deceased (4.5.7-10)."*[19]

Datta further opines based on the references from both *Satapatha Brahmana* and *Asvalayana Griha Sutras,* that as the former is older than the latter and as there is no mention of gathering of bones in the former, the practice of interring the dead bodies in sepulchers was prevalent and not urn-burials; while the latter clearly mention of post-cremation urn burials.[20] However, Datta also mentions on the two modes of disposal of dead mentioned in the *Rigveda*, viz., अग्निदग्धा and अनग्निदग्धा

the former indicating an urn burial while the latter a burial.[21] Datta has also made the correlation of Cemetery H burials from Harappa with the types described in *Asvalayana Grihya Sutras* for urn burials and also relating them with the homeland of Vedic Aryans as it is located in Punjab.[22]

Datta further mentions the verse *RV* X.18.10-13 for reference of burial custom while the verse *RV* X.16.1-6 mentions a cremation system.[23] Datta also suggests based on the interpretations of Max Muller and Winternitz on the internal chronology of *Rigveda*, and hence the burial system was earlier when compared to the cremation system, as X.16 is later in date than X.18.[24] The practice of disposing the dead in an urn after cremating the dead body was in vogue during the *Sutra* period as detailed descriptions are available in *Asvalayana Griya Sutra* as mentioned above. Based on these evidences, Datta opines that burial system was prevalent during the early Vedic period, while urn burial system was in vogue during later Vedic period and later the cremation mode replaced the latter.[25] Datta, in summary correlates the funeral customs of the 'Indus Valley Culture' with the Vedic and later Vedic literature and customs described in them.

6.3 Interpretation by M.S. Vats

Another earlier attempt to link the dead and disposal of the dead of the Harappans with the Sanskrit literature is by Vats, while describing the Cemetery H burials from Harappa.[26] Vats identifies the depiction of bulls without entrails in the Pot Burial Group 206 of Stratum I with a prototype of Anustarani, and another one to the right to that of Vaitarni. Vats also quotes the verse X. 16.7 from *Rigveda* in support of this depiction.[27]



Fig. 6.1: Depiction on Pot Burial Group 206, Stratum I, Cemetery H, Harappa

The verse X.16.7 from *Rigveda* reads as follows:

अग्नेर्वर्म परि गोभिर्व्ययस्व सं प्रोर्णुष्व पीतसा मेदसा च ।

नेत्त्वा धृष्णुर्हरसा जर्हृषाणो दधृग्विधक्ष्यन्पर्यङ्खयाते ॥७॥

The translation of the above verse as given by Arya *et al.* is, *"Enclose the main of Agni with the (hid of the) cow; cover it with the fat and marrow: then will not (Agni), bold, exulting in his fierce heat, proud, embrace you roundabout to consume you (to ashes)."*[28] Vats also quotes several references from later period Sanskrit literature in support of this depiction. They are *Asvalayana Ghrihya Sutra (IV.3), Aitreya Brahmana (III.3.8), Katyayana Srauta Sutra (XXV.7.30)* all for the Anustarani, and for the Vaitarni, he further quotes from *Ramayana (IV.44.65), Mahabharata (II.373) and Harivamsa (7736 and 9511).*[29] The depiction of another animal, that of outlined hindquarters of a goat from the same funeral vessels, Vats quotes again from *Rigveda* (X.16.1 and X.16.4) for its support.[30] The verse reads as follows:

मैनमग्ने शृतं दहो माभि शोचो मास्य त्वचं चिक्षिपो मा शरीरम्।
यदा शृतं कृणवो जातवेदोऽथेमेनं प्र हिणुतात्पितृभ्यः ॥१ ॥

The translation of above is *"Agni, consume him not entirely; afflict him not; scatter not (here and there) his skin nor his body; when Jatavedas, you have rendered him mature, then send him to the Pitrs."*[31]

अजो भागस्तपसा तं तपस्व तं ते शोचिस्तपतु तं ते अर्चिः।
यास्ते शिवास्तन्वो जातवेदस्ताभिर्वहैनं सुकृतामु लोकम् ॥४ ॥

The translation of above is *"The unborn portion (The goat is your portion); burn that, Agni, with your heat; let your flame, your splendor, consume it; with those glorious members which your have given him, Jataveads, bear him to the world (of the virtuous)."*[32] Vats interprets the depiction of cow and goat on the pottery vessels and the references from *Rigveda* that the interment of bones of the above-mentioned animals along with dead body for cremation / burial was meant to protect the deceased person from the flames of fires of Jatavedas (Agni), as the fire is meant to exhume only the animals and not the deceased person, who is to be guided to the region of pious by Agni.[33] However, Vats also mentions with caution on comparison from the literature as the examples from Harappa, which he discussed, were from post exposure fractional burials, while the references are from cremation context. Further, he also mentions that the comparison between Vedic Aryans and the culture of Harappa burials is difficult as the latters are yet to be identified with specific culture.[34]

6.4 Interpretation by S.R. Rao

The next major interpretation can be seen from the findings of Lothal excavtions by S.R. Rao.[35] The discovery and excavation of the cemetery at Lothal has been discussed in 4.3.6 and hence not repeated here. It is suffice to mention here that Rao, while discussing the findings from the cemetery alludes the modes of disposal to several references in the early and later Vedic literature. Rao refers to both burial and cremation as two major modes of disposal of dead as mentioned in the Vedic literature.

Rao also refers to two terms, namely, अग्निदग्धा and अनग्निदग्धा for two major modes of disposal of dead. Rao points out that the term अग्निदग्धा refers to the practice of burning the body by fire, and hence can be identifiable with cremation and अनग्निदग्धा refers to the practice of disposing the dead one by methods other than that of burning by fire.[36] Rao, further refers from the *Atharvaveda* for means of disposal of dead other than by cremation. He refers to the terms, परोप्ताः *paroptah* for casting out and उद्धीतः for exposure to the elements.[37]

The evidence from Harappa of a wooden coffin and mud brick chamber from Kalibangan for burying the dead is correlated with the reference from *Rigveda* and *Atharvaveda* regarding भूमिगृहः.[38] The references from *Satapatha Brahmana* regarding the shape of burial ground and disposal of dead in terms of its context to the settlement and the various modes practiced by Easterners (प्राच्यः) by having their burial mounds roundish are also made by Rao.[39] Rao also refers to the reference to the post-cremation burials from *Vajasaneyi Samhita*.[40] Further, Rao also refers to the mention of wrapping the dead body with flax in *Rigveda* and burning of a draft-ox along with the dead body in *Atharvaveda*.[41]

6.5 Interpretation by R.S. Bisht and P.V. Kane

The most recent work on the correlation of various modes of disposal of dead with the ancient literature is by R.S. Bisht.[42] Bisht discusses the relevance of literature in terms of the evidence obtained from the Dholavira excavations. The various types of burials excavated from Dholavira has been discussed in 4.3.3 and hence not repeated here. Bisht outlines that the various modes of disposal of dead

have been found in *Rigveda* and other later Vedic literature like *Atharvaveda, Yajurveda, Vajasaneyi Samhita, Satapatha Brahmana*, just to name a few.[43] The special category of burial tumuli discovered and excavated from Dholavira has been compared and correlated with the evidences from various literary works like *Maitrāyaṇī-saṁhitā*, *Taittīriya-saṁhitā, Śatapatha-brāhmaṇa, Śulba-sūtras* of *Baudhāyana, Āpastamba*, *Kātyāyana* and *Mānava.*[44] The radial pattern or the spoked-wheel pattern emerged from Tumuli 1 and 2 has been correlated with the references from *Rigveda* (*I.64.1, 2, 14, 30, 48, 11, 12; I.105.9; I.164; IV.17.14; V.31.11; VII.63.2*), *Satapatha Brahmana* (*XIII.8.1.1.17*) and *Maitrayani Samhita* (*III.2.6*).[45] Bisht has identified these tumuli burials as *".....an altar simulating a chariot-wheel with spokes or one with segments of the felly only…."*[46]

Bisht also discusses on the two broad modes of disposal of dead as mentioned in the literature, viz., those who were subjected to fire (अग्निदग्धा) and those disposed of with means other than fire (अनग्निदग्धा).[47] The further classification of interment of burials of the category not subjected to fire is also found from *Rigveda* as discussed by Bisht, who refers to *".....seated in the cases (perhaps, coffins) (RV X.15.5) of or upon a spread of barhis grass (RV X.15.3-4), or seated in (pottery) jars (RV X.15.9-10), or lying (in their graves) on their right side by drawing up (their) legs (RV X.15.6), certainly in crouched position like a foetus in the womb of mother."*[48] Similarly references in the literature on the interment of husband and wife together in one instance *(RV X.18.7-9)*; the brother of the deceased pulls out the wife and objects retrieved; piling of earth over a burial *(RV X.18.10-12)*; erecting a pillar *(RV X.18.13)* on or near the pile of earth and also putting a boundary of ring of stones between living and dead *(RV X.18.4)*.[49]

Bisht also draws attention to a verse from *Atharvaveda* wherein four modes of disposal of dead are referred to as निखाता, परोप्ताः, दग्धा and उद्धिताः.[50] The term निखाता indicates the disposal of body or relics by burying; परोप्ताः indicates 'cast away', implying *"….something uprooted from one place and transplanted at another, hence importing exhuming of a buried body…"*; दग्धा indicates cremation and उद्धिताः indicates *"….exposure of the dead body to the elements by way of keeping it on a higher place or on some such thing like a tree for carnivorous animals, birds and insects to feed on."*[51] Bisht also refers to the reference from

Satapatha Brahmana on the nature of burial place and dimensions of sepulcher for various categories of people.[52]

In this regard, the references cited by P.V. Kane from the *Satapatha Brahmana* are relevant regarding the nature of the burial ground, their shape and during which season the pit should be dug up.[53] Kane mentions that, *"...Satapatha Brahamana .....prescribes that he should make the burial mound on any level ground where the waters flowing from a southerly direction come to the east and stand still without dashing forward and on such a ground one may make it (burial mound)."*[54] Kane further cites that, *".....make it on a pleasant and peaceful spot, but not on a road nor in an open space.....should have the sun shining on it (at mid-day)....should not be made at a place where it would be visible from the village and there should be charming objects to its west (woods, gardens, etc.)....make it on salt (barren) soil, on such ground as abounds in roots.....must not make it too large.....should make it just a man's size, broader behind (to the west) and broader on the north side....encloses it with cords twisted in the non-sunwise way....bids them to cut out the earth which would be just sufficient for making the mound of a man's size."*[55] Kane also discusses elaborately on the references from *Satapatha Brahmana* on the rites of sepulchral mounds, rites of erecting mound over bones, stages in the disposal of dead bodies.[56]

Thus, it has been observed from the above interpretations given here of four scholars, the early and later Vedic literature is replete with references on the metaphysical and practical issues concerned with disposal of the dead and the rituals connected therein. In the following pages, an attempt has been made to again discuss the individual references along with the translation wherever possible and to correlate the typology and modes of disposal with the archaeological evidences as far as possible.

6.6 Modes of disposal of dead

As discussed above, both Rao and Bisht have referred to the instances in the literature on the two broad modes of disposal, i.e. dead bodies confined to fire and those modes other than confining to fire. The *Rigveda* (*X.15.14*) mentions these two modes of disposal as follows:

ये अ॒ग्निद॒ग्धा ये अन॑ग्निदग्धा मध्यै॑ दि॒वः स्व॒धया॑ मा॒दय॑न्ते ।
तेभि॑ः स्व॒राळसु॑नीतिमे॒तां य॑थाव॒शं त॒न्वं कल्पयस्व ॥१४ ॥

Bisht also refers to *RV X.15.11* and *AV VIII.3.44* which gives specifies the name of अग्निष्वात्ताः for those who practiced अग्निदग्धा mode of disposal of dead.[57] The relevant verses are reproduced below:

X.15.11

अग्नि॑ष्वात्ताः पितर॒ एह ग॑च्छत॒ सद॑ःसदः सदत सुप्रणीतयः ।
अ॒त्ता ह॒वींषि॒ प्रय॑तानि ब॒र्हिष्यथा॑ र॒यिं सर्व॑वीरं दधातन ॥११ ॥

AV VIII.3.44

अग्नि॑ष्वात्ताः पितर॒ एह ग॑च्छत॒ सद॑ःसदः सदत सुप्रणीतयः ।
अत्तो हवींषि प्रयतानि बर्हिषि रयिं च नः सर्ववीरं दधात ॥४४ ॥

Further, Bisht also mentions that the term अग्निष्वात्ताः was modified and a new term was coined subsequently as अनग्निष्वात्ता during *Yajurveda* for those who practiced अनग्निदग्धा mode of disposal (*YV XIX.60)*.[58] The relevant verse is reproduced below:

ये अग्निष्वात्ता ये अनग्निष्वात्ता मध्ये दिवः स्वधया मादयन्ते ।
तेभ्यः स्वराडसुनीतिमेतां यथावशं तन्वं कल्पयाति ॥६० ॥

The four modes of disposal mentioned in *Atharvaveda* (*VIII.2.34*) are reproduced below:

ये निखाता ये परोप्ता ये दग्धा ये चोद्धिताः ।
सर्वास्तानग्न आ वह पितॄन् हविषे उत्तवे ॥३४ ॥

Bisht gives the interpretation of the above verse, which is given under 6.4. Thus, it may be evident from the above references on the broad categories of disposal of dead during early and later Vedic period, which are:

(i) Disposal of dead by confining the dead to fire, i.e. cremating the deceased person and

(ii) Disposal of deal by means other than confining the body to fire, i.e. non-cremation.

a) Burying the dead body or relics, i.e. may represent both primary and secondary burials;

b) Building a burial for a person or individual expired somewhere else with the available evidences, which may represent a secondary or a symbolic burial and

c) Exposing the bodily remains at a high place to decompose and consumed by animals, birds or insects, for which the archaeological evidence is very difficult to find.

The evidence for the modes of disposal of burying the dead in the form of either a primary or a secondary and interment of body relics or symbolic burials has been encountered from many of the Harappan sites. The best example can be quoted here from the Sanauli evidence, wherein the evidence for primary burials has been found from majority of the burial contexts, while secondary burials are absent from Sanauli. However, the symbolic burials represented by Burials 14, 28, 106 and 116 clearly indicate a परोप्ताः type of burial as mentioned in *AV VII.2.34*.

The Burial 28 particularly is of interest as here a torso shaped copper container has 28 stylised copper objects, which might represent 28 individuals who died away from the homeland and whose bodily remains could not be found and hence a monument erected in their memory. It can be further added here that the copper container is accompanied by two dish-on-stands of the typical Late Harappan variety of drooping rims and base. It is also associated with a baked brick wall, only one arm of which could be found aligned in a northwest – southeast direction as in the case of majority of the burials.

The Burial 14 from Sanauli is an example of another symbolic burial wherein the personal weapons of a deceased individual could only be found and hence they were interred along with the usual burial pottery in an alignment meant for a regular burial. This burial also falls under the category of परोप्ताः of burial. This burial could have been erected for only one individual as in the case of ther three symbolic burials, i.e. Burials 106 and 116.

The अनग्निदग्धा category of burials is a broad typology and Bisht cites evidence from *Rigveda* on the sub-categories and types of this variety. The various sub-categories that are discussed by Bisht[59] are *(i) burials with coffins; (ii) seated on a bed of barhis grass; (iii) seated in pottery jars; (iv) body placed in a burial pit*

lying on the right side with legs drawn up; (v) piling up of earth over a burial after interment; (vi) marking the burial on the ground by erecting a pillar on top or by the side and finally not as a variety of burial, but the practice of placing a line or alignment of stones between the burial and the habitation separating them from each other.

6.6.1 Disposal of dead in coffins

RV X.15.5 reference to coffins
उपहूताः पितरः सोम्यासो बर्हिष्येषु निधिषु प्रियेषु ।
त आ गमन्तु त इह श्रुवन्त्वधि ब्रुवन्तु तेऽवन्त्वस्मान् ॥५॥

RV VII.89.1 reference to house of earth
मो षु वरुण मृन्मयं गृहं राजन्नहं गमम् ।
मृळा सुक्षत्र मृळय ॥१

AV V.30.14 Mention of mud chamber
प्राणेनाग्ने चक्षुसा सं सृजेमं समीरय तन्वा३ सं बलेन ।
वेत्थामृतस्य मा नु गान्मा नु भूमिगृहो भुवत् ॥१४ ॥

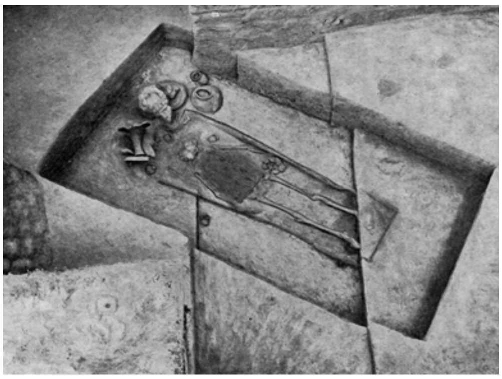



Fig. 6.2: Evidence of wooden coffin from Burial 5 (left); Fig. 6.3: Evidence of mud-brick coffin from Burial 10, Cemetery R 37, Harappa (1946)

Bisht refers to *RV* X.15.5 for a possible reference to coffins / container in the word निधि, and RV VII.89.1 which mentions to a house made of clay.[60] The verse *AV* V.30.14 clearly mentions of a भूमिगृहः for the placement of dead body. The भूमिगृहः may be either a wooden coffin or a mud-brick chamber inside the burial pit. The remains of a wooden coffin and a mud-brick coffin burial have been reported from the excavation at R 37 cemetery by Wheeler at Harappa.[61] The details of the burials have been already discussed under 4.3.1.2.

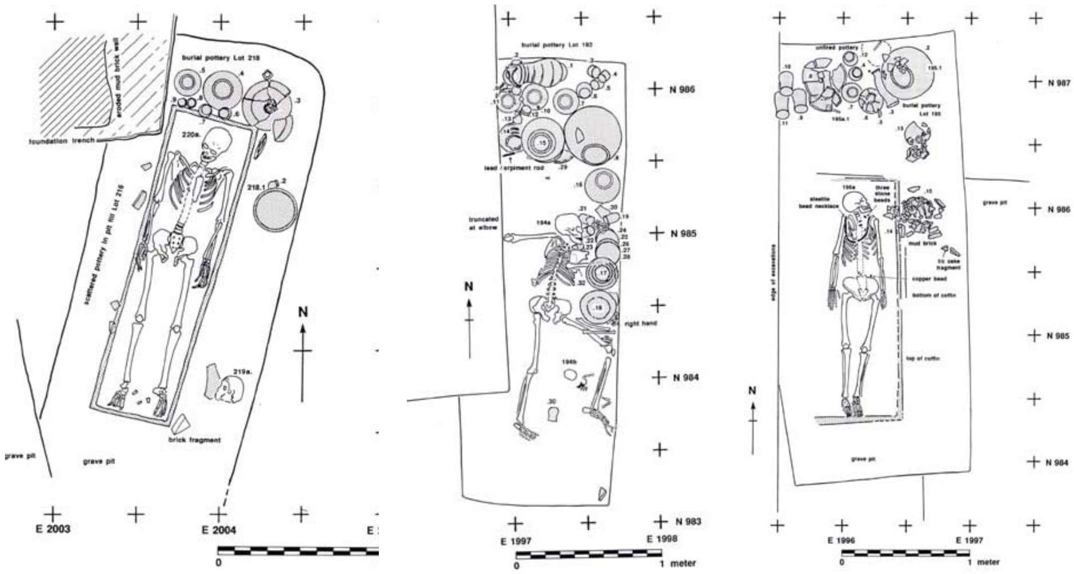


Fig. 6.4: Evidence of coffin burials from R 37 at Harappa (1986-1989), Burial 220a (left); Fig. 6.5: Burial 194 (centre) and Fig. 6.6: Burial 196 (right)



Fig. 6.7: Burial with a "mud coffin", Dholavira

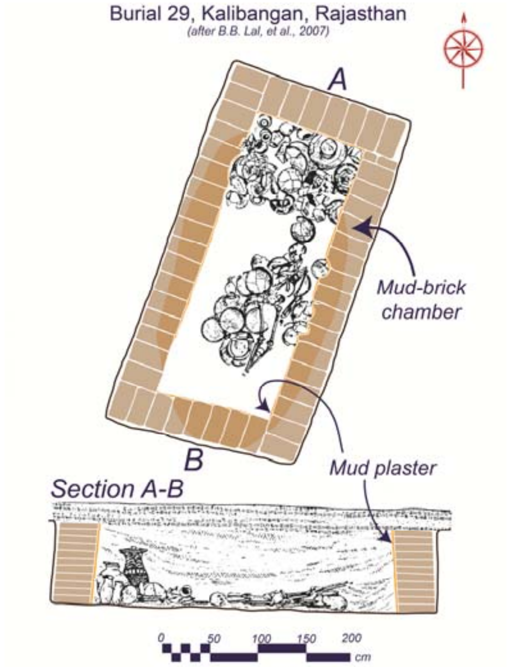


Fig. 6.8: Burial 29 with an elaborate mud-brick chamber, Kalibangan

The presence of wooden coffins is also reported during the excavations at R 37 carried out by HARP, the details of which are discussed in 4.3.1.4.[62] The remains of possible wooden lids in two burials have also been reported from the excavations by HARP at R 37.[63] The evidence of coffin from R 37 is reported from the Lot Nos. 220, 198, 136, 197, 194, 198, 220, and 136.[64] The evidence from Harappa is a clear indication of interment of dead ones in a specially made wooden chambers or coffins, the mode of which is described both in the early and later Vedic

literature. The remains of a mud coffin are also reported from the excavation at Dholavira the details of which are given in 4.3.3.[65]



Fig. 6.9: Burial 6 with mud-brick chamber, Lothal

The Burial 29 from Kalibangan is an elaborate one, containing a mud-brick rectangular chamber, plastered with mud plaster on the interior portion. The burial also contains well over 70 burial pottery, indicating the importance of the individual interred in it. The detail of the Burial 29 is given in 4.3.5.

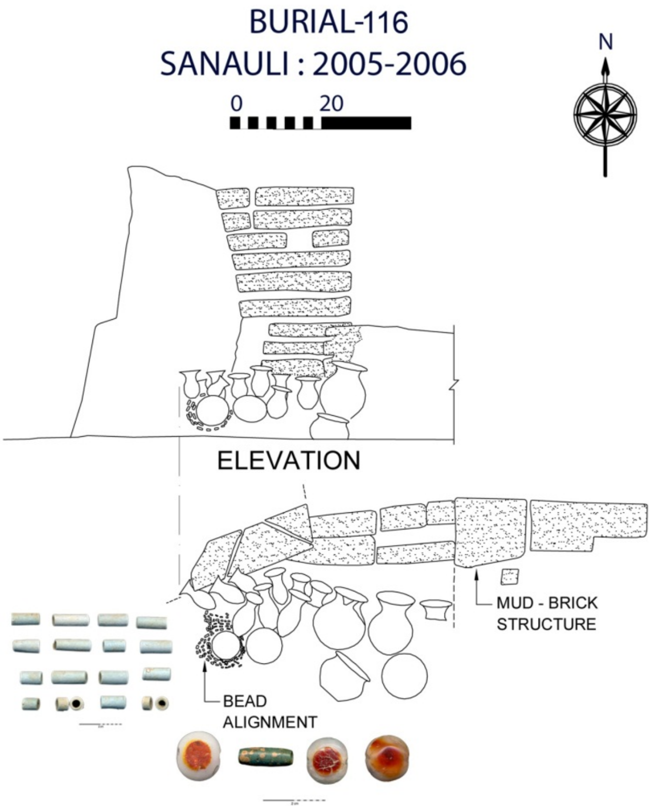


Fig. 6.10



Fig. 6.11



Fig. 6.12



Fig. 6.13

Fig. 6.10, 6.11, 6.12, & 6.13: Burial 116 showing the features of mud-brick chamber, Sanauli

The remains of mud-brick chamber are also reported from Burial 6 from Lothal, the details of which is given in 4.3.6. The evidence of a mud-brick chamber is also found from the Sanauli excavations, even though only a portion of the mud-brick walls is preserved in this case. The Burial 116 from Sanauli is a symbolic burial wherein no skeletal remains were found, even though an elaborate arrangement of burial pottery is found at the northern portion of the chamber. The chamber is made of mud-bricks, of which only portions of north and west walls are preserved. The evidence also indicates nine extant courses of mud-bricks, and the original height is indeterminable. The details of this burial are given at 5.5.3.116. Another interesting feature of this burial is the representation of a human torso arranged through over 600 faience beads.

The evidences enlisted above from the Harappan and late Harappan periods corroborate with those from literature of a chamber or a coffin (भूमिगृहः) for interment of deceased person. The possibility of a social hierarchy for such a necessity of preparation of either a mud-brick chamber or a wooden coffin cannot be ruled out, as the evidence for such elaborate burials are rare from the archaeological context. Nevertheless, it may be surmised here that the archaeological evidence indicates a definite correlation with the literary evidences in terms of a chamber / coffin executed underneath the ground for the dead bodies.

6.6.2 Reference to placement of dead bodies on *barhi* grass

The reference to other activities related to burial practice in the *Rigveda* is also alluded to by Bisht.[66] One such activity is the reference to the dead bodies seated on *barhi* grass, the verses have been reproduced here for ready reference. It has been argued[67] that the activity of placing the body on *barhi* grass is associated with the interment of dead persons in the burial pit / chamber / coffin, depending upon the nature of burial. The special type of grass mentioned implies some ritualistic significance associated with the burial practices. Even though there is no evidence for the placement of dead bodies on *barhi* grass from the archaeological context due to want of specialised scientific studies of the soil and other sediments from the Harappan burials, the practice alluded in the above reference from *Rigveda* cannot be completely ruled out either.

RV X. 15.3-4 seated on barhi grass

आहं पितॄन्त्सुविदत्राँ अवित्सि नपातं च विक्रमणं च विष्णोः ।
बर्हिषदो ये स्वधया सुतस्य भजन्त पित्वस्त इहागमिष्ठाः ॥३ ॥

बर्हिषदः पितर ऊत्यर्वागिमा वो हव्या चकृमा जुषध्वम् ।
त आ गतावसा शन्तमेथा नः शं योररपो दधात ॥४ ॥

6.6.3 Reference to placement of dead in pottery jars

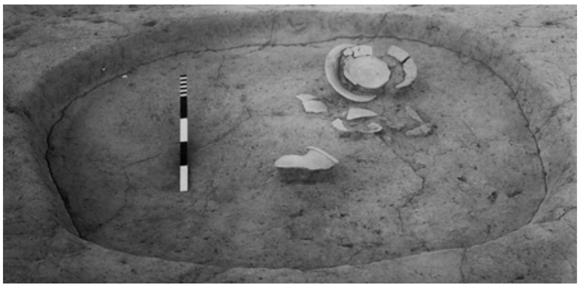
Bisht also discusses the mode of disposal of dead bodies in pottery jars as mentioned in the *Rigveda.*[68] The verses X.15.9-10 have been mentioned by Bisht for mentioning the placement of *pitrs* in pottery jars and the word घर्मसद्भिः has been identified with the pottery vessels by Bisht.[69]

RV X. 15.9-10 seated in pottery jars
ये तातृषुर्देवत्रा जेहमाना होत्राविदः स्तोमतष्टासो अर्कैः ।
आग्ने याहि सुविदत्रेभिरर्वाङ् सत्यैः कव्यैः पितृभिर्घर्मसद्भिः ॥९ ॥

ये सत्यासो हविरदो हविष्पा इन्द्रेण देवैः सरथं दधानाः ।
आग्ने याहि सहस्रं देववन्दैः परैः पूर्वैः पितृभिर्घर्मसद्भिः ॥१० ॥

In terms of archaeological evidence from Harappan sites, the pot burials have been reported from both mature and Late Harappan contexts. The reference of several instances of post-cremation urns from Mohenjo-daro, Harappa and several other Baluchistan sites can be quoted here as evidence to pottery jars used for either cremated body fragments, ash, and other contents, etc. The details have been already discussed in Chapter IV under 4.3.1 (Harappa), 4.3.2 (Mohenjo-daro), 4.3.5 (Kalibangan), 4.3.13 (Chanhu-daro), 4.3.14 (Periano-ghundai), 4.3.15 (Mughal-ghundai), 4.3.16 (Mehi), 4.3.17 (Sutkagen-dor), 4.3.18 (Dabar-kot) all from the Mature Harappan or contemporary context.

The Late Harappan burials from the Cemetery H burial site from Harappa can also be quoted as an evidence for pottery burials containing human fragmentary bones that were interred after exposure as well as post-cremation ones.


Fig. 6.14: Pot Burial 18, Kalibangan

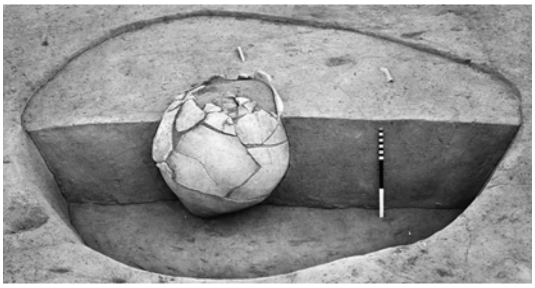

Fig. 6.15: Pot Burial 20, Kalibangan


Fig. 6.16: Pot Burial 25, Kalibangan

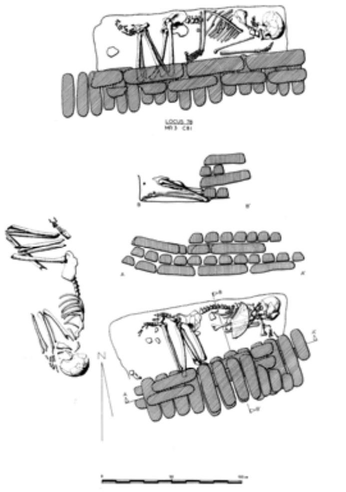
6.6.4 Reference to placement of dead on their right side and drawing up their legs

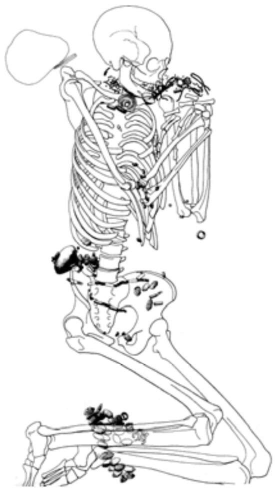
Another variety of disposal of dead in a burial in the form of laying the dead body one side together with drawing up their legs is also noticed from *Rigveda* and discussed by Bisht.[70] The verse *RV* X.15.6 mentions the nature of laying the dead on their right side while drawing up their legs in a crouched position. The drawing up of the legs and placing the hands in front of the face resembles the utero position in the foetal condition.

In the archaeological context, the laying of dead body on one side with legs drawn up is noticed right from the Neolithic period onwards from Mehrgarh. However, the mode of disposal of dead of this particular variety is not noticed during the Harappan and Late Harappan cultures, which indicates a clear demarcation from certain burial beliefs and customs or an indication of people from different socio-cultural beliefs and traditions.

RV X.15.6 lying on their right side drawing up their legs

आच्या जानु दक्षिणतो निषद्येमं यज्ञमभि गृणीत विश्वे ।
मा हिंसिष्ट पितरः केन चिन्नो यद्व आगः पुरूषता कराम ॥६ ॥





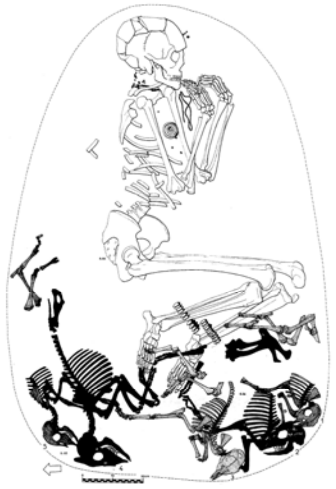


Fig. 6.17 **Fig. 6.18** **Fig. 6.19**

Figs. 6.17 - 6.19: Disposal of dead during Neolithic period, Mehgarh

The evidence from Mehrgarh is most striking in which the burials contain interment of dead body placed to its left (instead of right as noticed in the reference from *Rigveda*) with the legs drawn up. The evidence is noticed right from the Neolithic period up to the Advanced Chalcolithic period (Period VII), the details of which have been discussed in Chapter II under 2.2.1.



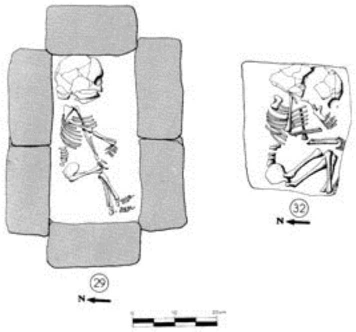




Fig. 6.20 **Fig. 6.21** **Fig. 6.22**

Figs. 6.20 - 6.21: Disposal of dead during Neolithic period; Fig. 6.22: Disposal of dead during Early Chalcolithic period (Period III), Mehrgarh

The evidence from other Baluchistan sites during the formative stages of Harappan culture (Pre / Early Harappan period) also indicates similar modes of disposal. Examples can be quoted here from the sites of Sohr Damb / Nal (4.2.1.1), Shahi Tump (4.2.2.2) (right side), Miri Qalat (4.2.3), Nindowari (4.2.5) (right side). The details have been discussed on the burials under Chapter IV.



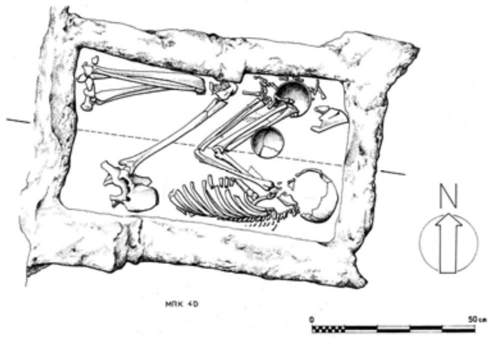


Fig. 6.23 & Fig. 6.24: Disposal of dead during Period VII (Advanced Chalcolithic period), Mehrgarh

Among the evidences from the sites mentioned above, the disposal of dead from the sites of Period VII from Mehrgarh, Shahi Tump and Nindowari is of special interest as the placement and arrangement of the dead body corresponds to the description available in *Rigveda*.

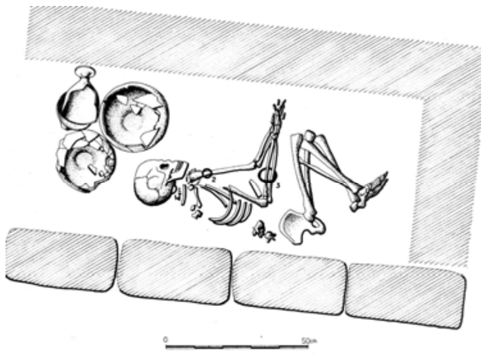


Fig. 6.25: Disposal of dead from Period VIII, Mehrgarh



Fig. 6.26: A burial from Period II, Sohr Damb / Nal

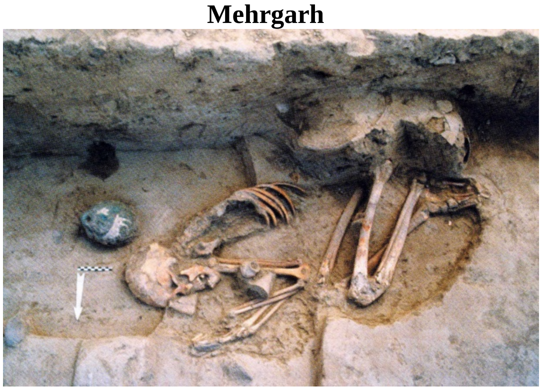


Fig. 6.27: Burial remains from Shahi Tump



Fig. 6.28: Burial remains from Shahi Tump

The position of dead body from these sites is laid on their right side with their legs drawn up along with burial pottery and furniture in a majority of cases. It is surprising to note as mentioned above that this particular mode of disposal of dead is not present during the mature or late Harappan Cultures.



Fig. 6.29: Burial remains from Shahi Tump



Fig. 6.30: Burial remains from Nindowari

6.6.5 Reference to joint burial

The reference to a possible joint burial of a wife along with her husband in one verse of *Rigveda* (X.18.7) and in another verse (X.18.8) the wife is being told to rise from the grave (possibly) to leave the husband as he is lifeless, while in X.18.9 it is indicated that the person was interred with bow and arrow, and Bisht interprets that the brother of the person interred pulls out the wife from the grave.[71] The translation of the three verses is given below. The verses indicate that there could have been a tradition to either bury the widow of the dead man along with him, or as a custom and tradition, a ritual is performed to lay the woman along with the dead man for a brief period and then the brother of the dead person raises her. It is also indicated by X.18.9 that the personal weapons were also buried along with the dead person for a brief period and then taken back.

RV X.18 7-9

इमा नारीरविधवाः सुपत्नीराञ्जनेन सर्पिषा सं विशन्तु ।
अनश्रवोऽनमीवाः सुरत्ना आ रोहन्तु जनयो योनिमग्रे ॥७ ॥

Let these women who are not widows, who have good husbands, enter (anointed) with unguent and butter. Let women without tears, without sorrow, and decorated with jewels, first proceed to the house.[72]

उदीर्ष्व नार्यभि जीवलोकं गतासुमेतमुप शेष एहि ।
हस्तग्राभस्य दिधिषोस्तवेदं पत्युर्जनित्वमभि सं बभूथ ॥८ ॥

Rise, woman, (and go) to the world of living beings; come this man near whom you sleep is lifeless: you have enjoyed this state of being the wife of your husband, the suitor who took you by the band.[73]

In terms of archaeological evidence, there are a few instances of joint burials from the Harappan sites, the best among them is the Burial 6 from Lothal

cemetery. The Lothal example is given above under 6.5.1 and Fig. 6.8. shows the position of two skeletal remains in the burial. Another example of a joint burial is from Burial 69, Sanauli, wherein the skeletal remains of three persons were unearthed. The sex determination of two of the individuals could be carried out which indicated that one is a male and other that of a female. It is difficult to interpret both these evidences in terms of the references found in *Rigveda* as the verses clearly indicate that the woman was raised by from the grave, which indicates that she was not buried, even though a ritual might have been performed.

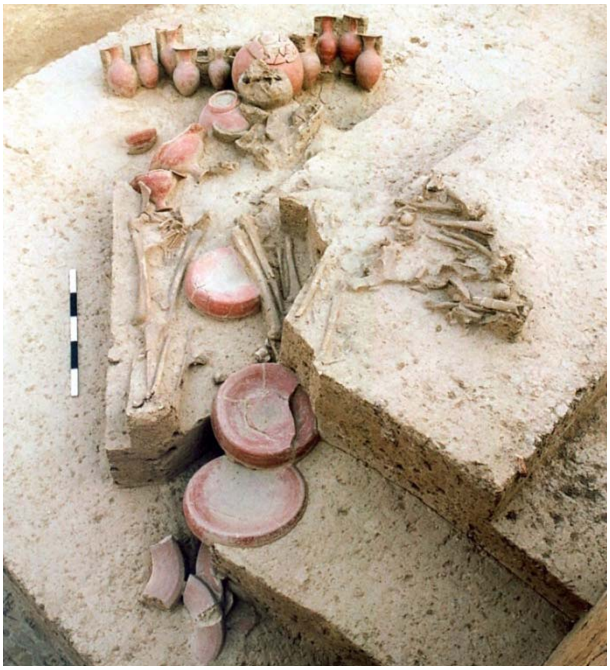


Fig. 6.31: Triple Burial (Burial 69) from Sanauli

Nevertheless, the evidence from archaeological record of at least two instances wherein both a male and female skeletal remains were found triggers new questions and interpretations as the excavator of Lothal even interpreted its evidence as a practice of *Sati* during Harappan period.[74]

धनुर्हस्तादाददानो मृतस्यास्मे क्षत्राय वर्चसे बलाय ।

अत्रैव त्वमिह वयं सुवीरा विश्वाः स्पृधो अभिमातीर्जयेम ॥९॥

Taking his bow from the hand of the dead man, for the sake of our vigour, energy and strength, (I say) you are there may we (who are) here, blessed with male offspring, overcome all the enemies who assail us.[75]

6.6.6 Reference to piling up of earth above burials

Bisht, as mentioned under 6.4 quotes several verses from the *Rigveda* on the surface indications of burials. It can be interpreted from the references in the

Sanskrit literature that there was a definite practice during Vedic times to indicate the burials as leaving the surface flattened will lead to damage to the graves. One such instance is the piling of earth above the burial, in the form of a tumulus to indicate the burial. The verses which indicate the piling up of earth above the burials are X.18.10-12 which are reproduced below along with the translations.

X.18 10-12 Piling of earth

उप सर्प मातरं भूमिमेतामुरुव्यचसं पृथिवीं सुशेवाम् ।
ऊर्णम्रदा युवतिर्दक्षिणावत एषा त्वा पातु निर्ऋतेरुपस्थात् ॥१० ॥

Go to this your mother-earth, the wide-spread, delightful earth; this virgin (earth is) as soft as wool, to the liberal (worshipper) may she protect you from the proximity of Nirrti.[76]

उच्छ्वञ्चस्व पृथिवि मा नि बाधथाः सूपायनास्मै भव सूपवञ्चना ।
माता पुत्रं यथा सिचाभ्येनं भूम ऊर्णुहि ॥११ ॥

Earth, rise up above him; oppress him not; be attentive to him (and) comfortable; cover him up, earth, as a mother covers her child with the skirt of her garment.[77]

उच्छ्वञ्चमाना पृथिवि सु तिष्ठतु सहस्रं मित उप हि श्रयन्ताम ।
ते गृहासो घृतश्चुतो भवन्तु विश्वाहास्मै शरणाः सन्त्वत्र ॥१२ ॥

May the earth heaped over him lie light; may thousands of particles (of dust) envelope him; may these mansions distil ghee (for him); may they every day be an asylum to him in this world.[78]





Fig. 6.32 & 6.33: General view of Tumuli 1 during excavation, Dholavira

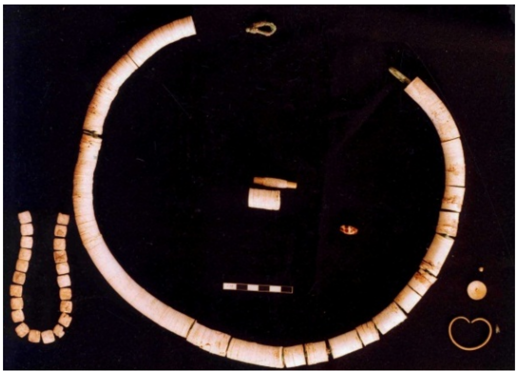




Fig. 6.34 Jewellery unearthed from Tumuli 1 (left) and Fig. 6.35: Arrangement of pottery and funerary goods inside the Tumuli (right), Dholavira

The above references clearly speak of a resting place for the deceased person in the laps of mother earth, where a grave pit could have been excavated and in order to further protect the buried individual, heap of earth was placed above it.





Fig. 6.36: General view of the Tumulus 2 (left);
6.37: Details of interior of Tumulus 2 (right), Dholavira

The placing of a heap of mud or earth can serve two purposes, first to indicate the presence of a burial so that it may not be desecrated and the second to further protect from the vagaries of nature to expose it. In terms of archaeological evidence from a Harappan site, clear and distinctive evidence is gleaned from the cemetery at Dholavira. At Dholavira, the presence of several tumuli were noticed on the north and northwest of a now dried up lake to the southwest of the settlement. Bisht excavated two of these tumuli and both revealed an extensive arrangement of burial complex, hitherto unearthed from any Harappan site. The details of these tumuli are given in 4.3.3 and hence not repeated here. One of the burials from Sanauli also has an indication of a surface piling of up earth that might have been placed over the burial after interment of skeletal remains and grave goods. The evidence is obtained from Burial 15, wherein a clear-cut pit line was also determined unlike most of the other burials where a clear grave pit line was very difficult to demarcate.

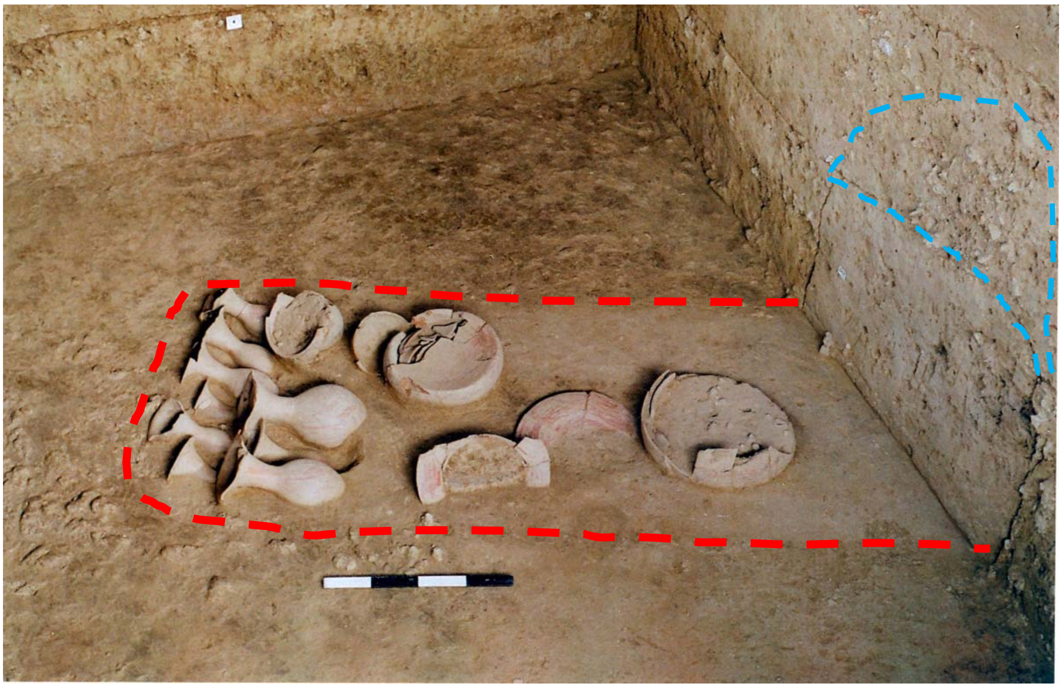


Fig. 6.38: Pit line indicated by red dashed line and heap of earth indicated by blue dashed line, Burial 15, Sanauli

6.6.7 Reference to surface indications of burials

There are references to other surface indications of burials other than the above-mentioned piling of earth or tumulus. Bisht refers to *RV X.18.13 and X.18.4* for such a surface indication in the form of erecting a pillar on top or side of the tumulus in the former and placing a ring of stones as a boundary between the living and the lead in the latter.[79]

X.18.13

उत्ते स्तभ्नामि पृथिवीं त्वत्परीमं लोगं निदधन्मो अहं रिषम्।
एतां स्थूणां पितरो धारयन्तु तेऽत्रा यमः सादना ते मिनोतु ॥१३॥

X.18.4

इमं जीवेभ्यः परिधिः दधामि मैषां नु गादपरो अर्थमेतम्।
शतं जीवन्तु शरदः पुरूचीरन्तर्मृत्युं दधतां पर्वतेन ॥४॥

In terms of archaeological evidence, the burial types from Dholavira and Surkotada exhibit the presence of vertical stones marking the presence of burials as well as cairn toppings on the surface over the burials.

6.6.8 Reference to funerary offerings and vessels

There are references from the later Vedic literature on the nature of offerings to the dead and pottery in which they are placed. The references from *Atharvaveda* have been quoted by Bisht in this regard and the relevant verses are *AV VIII.4.16-30,* which are reproduced below for ready reference:

AV.VIII 4.16-30

अपूपवान् क्षीरवांश्चरुरेह सीदतु ।

लोककृतः पथिकृतो यजामहे ये देवानां हुतभागा इह स्थ ॥१६ ॥

The above verse mentions about the offerings of cakes made of flour (of rice / wheat) cooked with *ghee* (पुए) and food cooked in milk (क्षीर) made to the *pitrs.*

अपूपवान् दधिवांश्चरुरेह सीदतु ।

लोककृतः पथिकृतो यजामहे ये देवानां हुतभागा इह स्थ ॥१७ ॥

The above verse mentions about the offerings of cakes made of flour (of rice / wheat) cooked with *ghee* (पुए) and curds.

अपूपवान् द्रप्सवांश्चरुरेह सीदतु ।

लोककृतः पथिकृतो यजामहे ये देवानां हुतभागा इह स्थ ॥१८ ॥

The above verse mentions about the offerings of cakes made of flour (of rice / wheat) cooked with *ghee* (पुए) and drops / juices.

अपूपवान् घृतवांश्चरुरेह सीदतु ।

लोककृतः पथिकृतो यजामहे ये देवानां हुतभागा इह स्थ ॥१९ ॥

The above verse mentions about the offerings of cakes made of flour (of rice / wheat) cooked with *ghee* (पुए) and clarified butter (*ghee)*.

अपूपवान् मांसवांश्चरुरेह सीदतु ।

लोककृतः पथिकृतो यजामहे ये देवानां हुतभागा इह स्थ ॥२० ॥

The above verse mentions about the offerings of cakes made of flour (of rice / wheat) cooked with *ghee* (पुए) and flesh / meat.

अपूपवानन्नवांश्चरुरेह सीदतु ।
लोककृतः पथिकृतो यजामहे ये देवानां हुतभागा इह स्थ ॥२१ ॥

The above verse mentions about the offerings of cakes made of flour (of rice / wheat) cooked with *ghee* (पुए) and food.

अपूपवान् मधुमांश्चरुरेह सीदतु ।
लोककृतः पथिकृतो यजामहे ये देवानां हुतभागा इह स्थ ॥२२ ॥

The above verse mentions about the offerings of cakes made of flour (of rice / wheat) cooked with *ghee* (पुए) and honey.

अपूपवान् रसवांश्चरुरेह सीदतु ।
लोककृतः पथिकृतो यजामहे ये देवानां हुतभागा इह स्थ ॥२३ ॥

The above verse mentions about the offerings of cakes made of flour (of rice / wheat) cooked with *ghee* (पुए) and juices.

अपूपवानपवांश्चरुरेह सीदतु ।
लोककृतः पथिकृतो यजामहे ये देवानां हुतभागा इह स्थ ॥२४ ॥

The above verse mentions about the offerings of cakes made of flour (of rice / wheat) cooked with *ghee* (पुए) and water.

अपूपापिहितान् कुम्भान् यांस्ते देवा अधारयन् ।
ते ते सन्तु स्वधावन्तो मधुमन्तो घृतश्चुतः ॥२५ ॥

The above verse mentions about the offerings prepared of rice cakes mixed with ghee (पुए) which are placed in covered pottery vessels (कलश or कुम्भ) and full of fatness and honey juices. Thus, this verse is a direct reference to pottery vessels filled with offerings.

यास्ते धाना अनुकिरामि तिलमिश्राः स्वधावतीः ।
तास्ते सन्तूद्भ्वीः प्रभ्वीस्तास्ते यमो राजानु मन्यताम् ॥२६ ॥

The above verse mentions about the offerings consisting of grains and sesame seeds soaked in water and heated in pans, which are offered for safe passage through the netherworld.

अक्षितिं भूयसीम् ॥२७ ॥

The above verse mentions that let these offerings made (through the above verses) be available for the deceased person and Yama may grant permission for usage for a longer period.

द्रप्सश्चस्कन्द पृथिवीमनु द्यामिमं च योनिमनु यश्च पूर्वः ।
समानं योनिमनु संचरन्तं द्रप्सं जुहोम्यनु सप्त होत्राः ॥२८ ॥

The above verse mentions that the sacred juice (*Soma*) which is only available to the great seers and holy men is offered through seven oblations.

शतधारं वायुमर्कं स्वर्विदं नृचक्षसस्ते अभि चक्षते रयिम् ।
ये पृणान्ति प्र च यच्छन्ति सर्वदा ते दुह्रते दक्षिणां सप्तमातरम् ॥२९ ॥

The above verse mentions about the various god like Vayu, Aditya, Deva, etc., and these offerings made help in the safe passage.

कोशं दुहन्ति कलशं चतुर्बिलमिडां धेनुं मधुमतीं स्वस्तये ।
ऊर्जं मदन्तीमदितिं जनेष्वग्ने मा हिंसीः परमे व्योमन् ॥३० ॥

The above verse requests the god Agni not to cause harm or injury or offerings made so that the purpose for which they were caused to be serve the purpose. The above verses clearly indicate that the various pottery vessels placed in the burial pit were meant for holding different types of food offerings like *"....cake, milk, curd, ghee, meat, juices, honey, other eatables, some mixed with sesame seeds and so on.."* as mentioned by Bisht.[80] The various pottery vessels found from the burials of Harappan and late Harappan period could have served a definite purpose of holding some sort of food items.

The exact food items it was holding can be scientifically identified by lipid profile tests. However, from the foregoing references of Vedic and later Vedic literature, it can be presumed that a variety of food items were placed, also in covered pottery vessels. The burial pottery from the cemeteries of various sites includes a wide variety of types and shapes. Sanauli too, is not an exception in this case, and the general typology of burial pottery consists of tall, elliptical vases; bowls, small pots, large vases, storage jars with / without lids, dish-on-stands, etc. A detailed analysis of the burial pottery types is carried out in 5.5.4.1.

6.6.9 Reference to recitation during the death ceremony

The *Rigveda* in the Sukta 16 of X Mandala also contains verses that are referred to as recited at or upon the death of a person.[81]



Fig. 6.39: Pottery vessels in Burial 15, Sanauli



Fig. 6.40: Pottery vessels in Burial 14, Sanauli

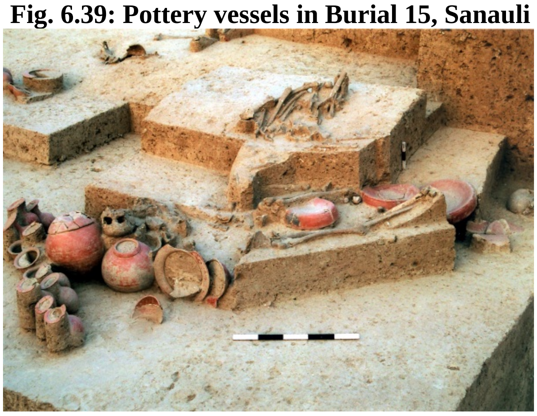


Fig. 6.41: Pottery vessels in Burial 69, Sanauli

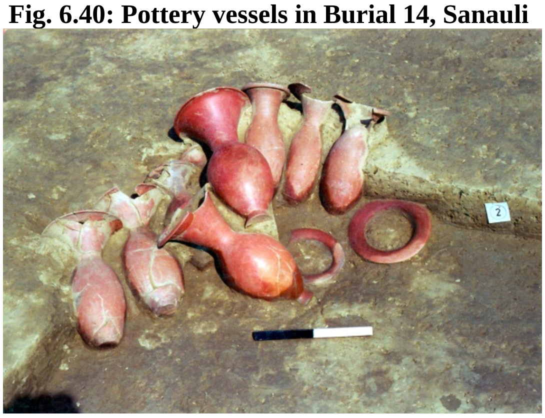


Fig. 6.42: Pottery vessels in Burial 8, Sanauli

This is also an indication of the standardisation of rituals and practices related to death. The verses that are commonly recited at or upon the death of a person are *RV X.16.1-6* which are mentioned below along with translation:

X.16 1-6

मैनमग्ने शृतं दहो माभि शोचो मास्य त्वचं चिक्षिपो मा शरीरम्।

यदा शृतं कृणवो जातवेदोऽथेमेनं प्र हिणुतात्पितृभ्यः ॥१ ॥

Agni, consume him not entirely; afflict him not; scatter not (here and there) his skin nor his body; when Jatavedas, you have rendered him mature, then send him to the Pitrs.[82]

शृतं यदा करसि जातवेदोऽथेमेनं परि दत्तात्पितृभ्यः।

यदा गच्छात्यसुनीतिमेतामथा देवानां वशनीर्भवाति ॥२ ॥

When you have rendered him mature, then give him up, Jataveds, to the Pitrs; when he proceeds to that world of spirits, then he becomes subject to the will of the gods.[83]

सूर्यं चक्षुर्गच्छतु वातमात्मा द्यां व गच्छ पृथिवीं च धर्मणा ।
अपो वा गच्छ यदि तत्रं ते हितमोषधीषु प्रति तिष्ठा शरीरैः ॥३॥

Let the eye repair to the sun; the breath to the wind; go you to the heaven or to the earth, according to your merit; or go to the waters if it suits you (to be) there, or abide with your members in the plants.[84]

अजो भागस्तपसा तं तपस्व तं ते शोचिस्तपतु तं ते अर्चिः ।
यास्ते शिवास्तन्वो जातवेदस्ताभिर्वहैनं सुकृतामु लोकम् ॥४॥

The unborn portion, burn that, Agni, with your heat; let your flame, your splendor, consume it; with those glorious members which your have given him, Jatavedas, bear him to the world (of the virtuous).[85]

अव सृज पुनरग्ने पितृभ्यो यस्त आहुतश्चरति स्वधाभिः ।
आयुर्वसान उप वेतु शेषः सं गच्छतां तन्वा जातवेदः ॥५॥

Dismiss again to the Pitrs, Agni, him who offered on ou, comes with the Svadhas: putting on (celestial) life, let the remains (of bodily life) depart: let him, Jatavedas, be associated with a body.[86]

यत्ते कृष्णः शकु आतुतोद पिपीलः सर्प उत वा श्वापदः ।
अग्निष्टद्विश्वादगदं कृणातु सोमश्च यो ब्राह्मणाँ आविवेश ॥६॥

Should the black crow, the ant, the snake, the wild beast, harm (a limb) of you, may Agni the all devourer, and the Soma that has pervaded the Brahmanas, make it whole.[87]

6.6.10 Reference regarding the size of burial pits

It is also interesting to note that the Vedic literature also contains information on the various sizes of pits that are to be dug for various classes of people. In this regard, Bisht cites reference from the *Satapatha Brahmana* which indicates the various sizes of pits. Like Datta at 6.2 above, Bisht also mentions that *"….a sepulchre should be of man's size and not too large and yet…..the dimension of the mound different for each class of people such for a Kshatriya as high as a man with stretched arms, for a brahmana reaching up to the mouth, for a woman up to the hips, a vaisya up to the thighs, for a sudra up to the knee."*[88] The reference for the above is from the verse XIII.8.3.11 of *Satapatha Brahmana*.

The above reference is an indication of the varying sizes of burial pits depending upon the class of people to be interred. This also reflects the social conditions prevailing in the contemporary society. Archaeologically speaking, it is very difficult to determine the exact depth of the grave pits, as it has been largely observed in cemeteries like Harappa, Kalibangan or at Sanauli, they were in continuous use for a longer duration and hence levelled and used. It is also due to this fact that several older burials have been disturbed by later period burials. Subsequently, after the sites have been abandoned and later period activities largely affected the surface contour of the ancient sites as well as the cemeteries. The cemeteries of Harappa and Sanauli are excellent examples in this regard, wherein the burials are found very close to the surface and also the upper level burials are often affected by ploughing and other levelling activities.

6.7 Concluding Remarks of Chapter VI

Several scholars attempted the correlation of customs and practices related to burial rituals between the archaeological evidences and the earliest Sanskrit literature as observed above in the past. However, the present attempt was aimed at correlating the available archaeological evidences vis-à-vis the literary references already available in the form of published references. Thus, along with the literary references, the available archaeological evidences have been presented side by side in order to understand and interpret the forms available. It was observed that the archaeological evidences from Harappa, Lothal, Kalibangan, Dholavira and Sanauli, etc., correlates with the literary references to disposal of dead and certain rituals performed to a larger extent. However, the consensus on the dating of the literary sources vis-à-vis the archaeological evidence from Harappan culture is a major issue. Nevertheless, even if the early Vedic and later Vedic literature is dated to the mid of second millennium BCE, it preserves definitive references for the kind of rituals and practices related to disposal of dead and it can be easily presumed that even compiling and putting into a vast quantity of literature in the form of a book requires a vast accumulation of knowledge of the bygone eras and cultures.

Thus, the information contained in the Vedic literature along with the contemporary cultural beliefs and customs of the people, may also preserves the knowledge of the bygone eras to a certain extent. In this context, the correlation of

archaeological evidence from the Harappan Culture with the Vedic literature should not be out of context and not in isolation. The scientific analysis of pottery contents from the burials of Harappan sites including that of Sanauli may also help in the future to exactly correlate with the references from *AV* VIII.4.16-30 regarding the nature of food items made as offerings in pottery vessels.

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Chapter – 7

Discussion and Summary

7.1 Discussion

In the foregoing chapters, an attempt was made to understand the burial practices of the Harappan culture, along with its formative and degenerative phases with a special emphasis of evidences gathered from the excavation of Sanauli, a prominent late Harappan cemetery site. An attempt was made to trace the disposal of dead and burial practices with the available excavated evidences starting from the prehistoric period onwards. It has been seen that the concept of burying the dead and performing certain rituals in the global context dates back to prehistoric times as evidenced from Chapter 1. In the Indian context too, burial remains have been noted from the prehistoric period (Mesolithic here) onwards, at sites such as Bhimbetka, Damdama, Mahadaha, Baghai Khor, Bagor, just to name a few. This is followed by the disposal of the dead during the Neolithic period, some prominent sites being Mehrgarh, Burzahom, Nagarjunakonda, Budihal.

The interment of individuals in burials continues during the Chalcolithic period also as evidenced from sites like Balathal, Inamgaon, Daimabad, Nevasa, etc. Finally, the Iron Age / Megalithic tradition in South Asia exhibits an elaborate and diversified as well as monumental architecture associated with burials along with a wide variety of burial goods and personal weapons, jewellery, etc. The different modes of the disposal of the dead noticed during the Mesolithic, Neolithic, Chalocolithic periods have been examined in Chapter 2, consisting of a site-wise discussion and description.

A total of thirty-five sites (eleven prehistoric and twenty-four proto-historic sites) have been surveyed along with the general typology of megalithic traditions from various sites. The site-wise variations noticed in the burial customs have been plotted on a map in order to understand diversification and regional patterns, if any. The patterns have been indicated on the Fig. 7.1, which clearly shows a wide variety of burial practices.

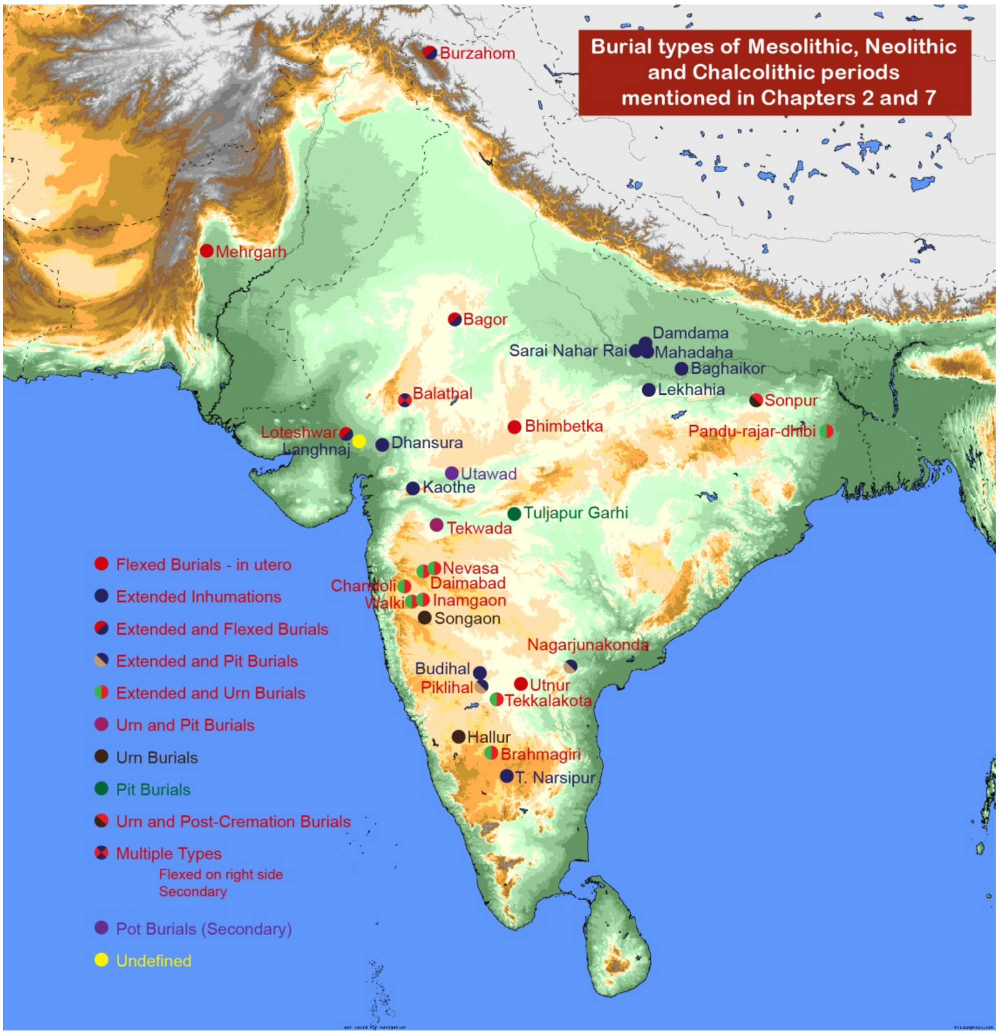


Fig. 7.1: Sketch map showing the distribution of burial types of Mesolithic, Neolithic and Chalcolithic periods and sites mentioned in Chapters 2 and 7

The chief burial practices were (i) flexed burials in the utero position, with legs drawn up in the fetal position, (ii) extended inhumations, which is a common and prominent typology, which extends well into the Harappan culture also, (iii) pit burials, a simple and not so elaborate burials in which the deceased individual is interred in a pit, (iv) urn burials, which chiefly contained the post-cremation remains like ashes, charcoal, burnt human and animal bones along with burial goods, (v) post-cremation burials which are also described as fractional burials in some cases, and (vi) pot burials, as described by the excavators, otherwise belongs to the urn variety.

While discussing on the scope and potential of mortuary practices, Binford presents a synthesis of various scholarly views on the significance of different modes of disposal. The 'propositions' on various modes of disposal as discussed by

scholars and compiled by Binford is relevant in understanding the context and hence reproduced below for a better understanding:[1]

> *"….**Cremation** is associated with belief in an afterworld in the sky; burning the physical remains releases the soul which is then transported to the celestial afterworld via the ascending smoke…"*
>
> *"…**Cremation** is associated with extreme fear of the corpse and hence a desire to "be done with it…"*
>
> *"…**Flexing** the body was a copy of the position of the foetus in utero which was taken as a symbol of rebirth…"*
>
> *"…**Flexing** of the body was the result of binding the legs to the body to prevent the spirit from walking and thus returning to the living…"*
>
> *"…..**Orientation** of the body in death with respect to cardinal directions "seems to be the working out of the solar analogy, on the one hand is death at sunset... new life at sunrise….."*
>
> *"…..**Orientation** of the body in death with respect to cardinal directions (celestial orientation) is related to a belief in a continued life of the dead man at a celestial land of the dead, orientation being in the direction the deceased must travel in their journey to the land of the dead…"*
>
> *"….**Orientation** of the body with respect to terrestrial reference points is related to a belief in reincarnation since the body is aligned toward the location where the soul must reside before being reborn…"*
>
> *"….The direction of **orientation** of the body at death is toward the original home of the forefathers….."*
>
> *"…..The **dead are buried near, or in, their old homes**, because they are wanted back again, in the form of babies born of women of their own clan, tribe or family….."*
>
> *"Tyler……**burial of children under house floors**, writes: "It is not impossible that we have here one of the ways in which the fear of the dead may have been gradually dispelled. May we not imagine that one of the first steps was the refusal of the mother to allow her dead child to be banished from the house?"*

Based on the multiple views of scholars on mortuary practices, Binford concludes, *"…change or variability in mortuary practice, as demonstrated, is commonly attributed to change or variability in beliefs."* [2] This is largely reflected in the variations in the burial practices noticed even during the prehistoric period in

the Indian sub-continent. However, the exact meaning and relevance of the various modes of disposal is very difficult to assume unless cross-cultural ethnographic studies and analysis are carried out with analogies drawn from historical literature.

A cursory look at Fig. 7.1 indicates some clustering. The extended and urn burial types are mostly concentrated in the Deccan Chalcolithic cultures with some presence in South India, while the extended burial types are found concentrated in the middle-Ganga valley sites. Does this signify the concentration of people with specific ritual customs and beliefs? It may be true to a large extent as specific populations do have different practices, but the inner meaning and purpose may vary from culture to culture. In other words, the meaning and purpose of interment of the deceased individual in a flexed / utero position, may vary from culture to culture as this practice is observed across a wide spatio-temporal context. Further, a large number of sites under discussion of the pre and proto-historic periods are also contemporary to the Harappan culture, and it may signify cross-cultural contacts and hence transmission and migration of ideas, or migration / settlement of particular class of people from region to region. Thus, it assumes a complex phenomenon when it comes to understanding the inner psyche in relation to various burial practices and their relevance and importance in the contemporary society. It is also pertinent to understand here that burying the dead as a mode of disposal might have constituted a very low percentage of the population, and there is a clear possibility multiple modes of disposal were followed during the same period and culture. This is also reflected during the pre and proto-historic period sites as gleaned from Fig. 7.1.

Evidence from Mehrgarh on the modes of disposal starting from the Neolithic period onwards to Chalcolithic along with the evidences from the sites of Sohr Damb / Nal, Kulli, Nindowari, Miri Qalat, Shahi Tump of the formative phases of Harappan culture is relevant in terms of understanding the developmental stages in disposal of dead. Since the earliest periods at Mehergarh, it has been observed that the burial types are of the flexed inhumations in utero, initially in 'L' shaped shafts dug into the earth, and provided with mud-brick wall at the end of vertical portion of the shaft.

There is a noticed change in the burial practices during the early Chalcolithic period at Mehrgarh in comparison to the Neolithic period, as it is observed that traits like abundance of red ochre coating on bodies, animal offerings, burial side-walls, pottery, bitumen, stone and bone tools, stone vessels, etc., are discontinued, even though other traits like orientation of the burials, which are placed in an east – west direction with the head towards the east, continue along with the other traits, like placing the body on one side in a flexed condition with grave goods continue. This may indicate an infusion of new thoughts along with the older ones, as the introduction of copper metallurgy might have necessitated borrowing of thoughts and even interaction with new populations.

Again, in the advanced Chalcolithic levels of Period VI and VII, the majority of the burials from Mehrgarh are of children with one or two exceptions of an adult burial. The interment is in clay coffins or boxes, a marked departure from the previous periods and the total abandonment of shaft burials with the only continuation of an east – west orientation. The nearly complete absence of adult burials is also another notable feature, which may indicate an adoption of different mode of disposal for them. During the Period VIII at Mehrgarh, it can be seen that only burial remains were encountered which consists of graves and cenotaphs, the latter often with mud-brick features, while the east – west orientation continued. Another evidence from this period is the preservation of burnt layers that have been identified as an evidence of cremation rites. Thus, it can be observed that this single site, which has a long cultural history preserves excellent evidences of changing modes of disposal of dead along with the introduction of technologies and augmenting development.

It is in this context, that evidences from sites like Sohr Damb / Nal, Shahi Tump, Miri Qalat, Kulli and Nindowari are relevant. The sites yielding evidences of burial practices during the formative phases and Early Harappan period are in Fig. 7.2. The evidence from the Togau and Nal phase from Sohr Damb / Nal indicate chamber tombs constructed of mud-bricks, often with partition, containing multiple chambers in the former period, containing multiple fractional interments indicating continuous use.

The Nal phase saw the change in burial customs from multiple fractional burials to individual interments along with levelling the necropolis of Togau phase. The orientation of these burials is again in an east – west direction, with the placement of skeleton in flexed position in utero. The evidence of multiple burials is also found at Shahi Tump, which also shows other burial modes like individual interments, cremation type and secondary burials. The placement of skeleton in the primary interments is again in flexed position and in utero inside mud-brick or stone constructions. The use of red ochre as noticed in the case of earliest levels of Mehrgarh is observed here.

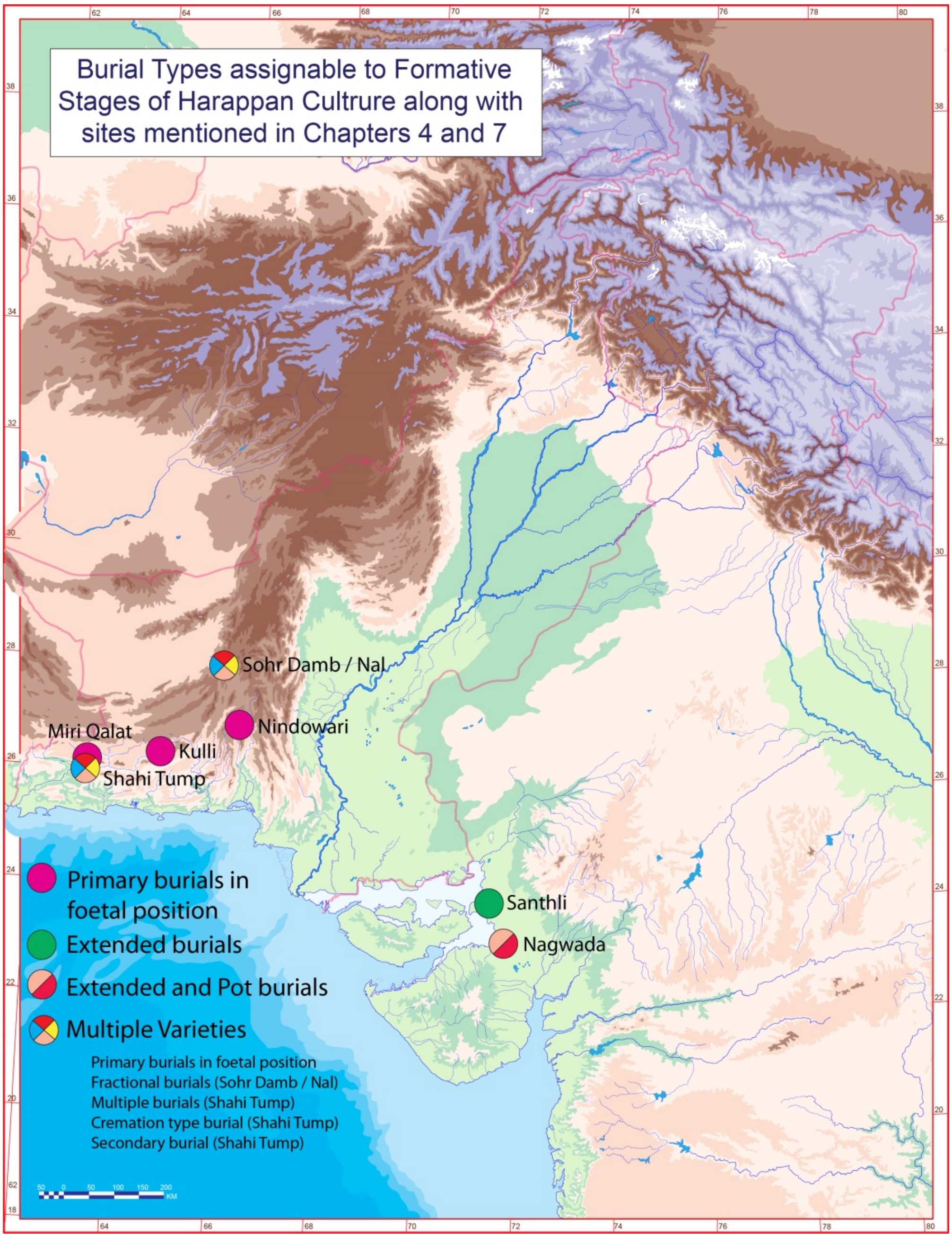


Fig. 7.2: Map showing the distribution of burial remains from site of the Early and Pre-early Harappan periods mentioned in Chapters 4 and 7

The dominant burial types from Shahi Tump are the primary individual burials (71%) followed by multiple burials (17%). The dominant orientation is west – east (76%) while other types like north – south (11%), south – north (7%) and east – west (3%) are also found. The evidence of burials from Miri Qalat is from Periods I and IIIa, the latter being well represented, which belongs to end of 4^{th} – beginning of 3^{rd} millennium BCE. The skeletons here too are placed in west – east orientation, in fetal position and painted in red ochre. The burial evidence from Kulli consists of a skeletal remain placed in north – south orientation, in utero, similar to other sites of Baluchistan.

A burial remain from Nindowari, which is published and termed as one of the two "haphazard burials" found without any pottery remains, is also in fetal position, drawing parallels from other Baluchistan sites. The dating of the Nindowari evidence has been termed as a problem in the absence of datable pottery in association of the burial. Even otherwise, the position of the skeletal remains from Nindowari, shows a clear continuation of the tradition of placing them in fetal condition, with modifications in mode of interments. The other two sites from which burials from the formative stages of the Harappan culture are noticed is Santhli and Nagwada, both from northern Gujarat. These two sites present evidence of extended burials, hitherto unnoticed from Baluchistan and an urn / pot burial, the latter from Nagwada. It may also be pertinent to mention here that the pot burial variety is also noticed from the mature Harappan levels of Surkotada, not far away from Nagwada to its west.

Thus, to sum up, the evidence of burials from the formative stages of pre-early and early Harappan periods of Harappa culture shows a wide variety of types, even though large similarities are observable within the Baluchistan region. This region, culturally and geographically is also different from the plains of Indus and thus a different eco-zone altogether. This might have necessitated the adoption of different burial customs in terms of burial architecture, and the internal arrangement of deceased bodies is different from later periods. Another noticeable factor is the usage of red ochre on the body, as indicated by its traces from the burials, on or below the skeletons as well as on the burial goods. The finding of a worked block of hematite from Period II of Shahi Tump is good evidence on the usage of red ochre and its relevance.



Fig. 7.3: Worked block of haematite from Period II, Shahi Tump, Pakistan

The occurrence of mud-brick / mud chambers for the interment of deceased individuals is another piece of evidence from Baluchistan sites, thus indicating its antiquity to at least 4th millennium BCE. In terms of understanding cross-cultural relations and interactions as early as the Neolithic levels of Mehrgarh and later during the Chalcolithic levels at Baluchistan sites, the presence of artefacts of various raw materials like shell, steatite, galena, garnet, etc., is clear evidence for such activities. Along with the interactions between various contemporary societies, the ideas and rituals related to various customs might also have been transmitted. Even though direct evidence for introduction of such ideas is not available, an indirect evidence can be in the form of introduction / modification of burial customs from site like Mehrgarh, which has a long continuity. The evidences from Gujarat sites are different from those of Baluchistan sites as mentioned above, which may also be due to different eco-zones and belief systems.

For the mature Harappan period, a total of eighteen sites were surveyed for understanding the overall burial practices in the present study. The different burial typologies from these sites are shown in Fig. 7.3. It can be observed from the figure that three regions are broadly discernible in terms of burial practices. They are 1) Baluchistan & Sindh; 2) Punjab, Rajasthan, Haryana and Uttar Pradesh and 3) Gujarat. The Baluchistan and Sindh region sites indicate a predominant practice of post-cremation urns; the Gujarat sites represent multiple varieties with the Kachchh area displaying more diversification than the solitary example of Lothal. The sites falling in Punjab, Rajasthan, Haryana and Uttar Pradesh present a different picture altogether, consisting mostly of extended inhumation burials, while the sites of Harappa and Kalibangan showing multiple burial practices.

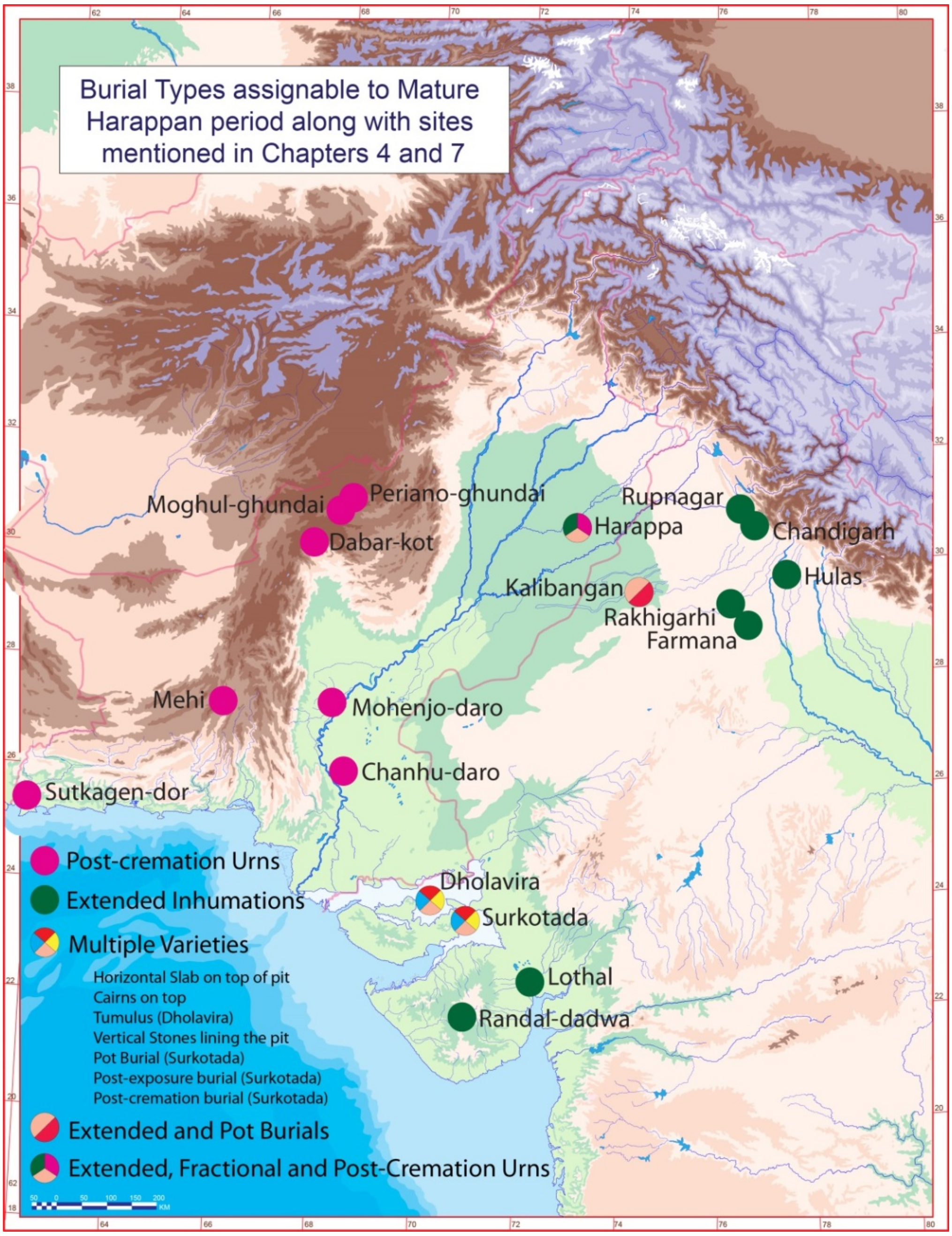


Fig. 7.4: Map showing the burial typologies during the Mature Harappan Period along with sites mentioned in Chapters 4 and 7

Post-cremation urn burials, predominant in the Baluchistan area are also found at Harappa, while pot / urn burials are found at Kalibangan. The general typology of the post-cremation urns consists of interment of with or without charred human bones along with ashes, charcoal, animal bones, pottery and artefacts inside a large urn. In this regard, the evidence from Mehi is quite interesting. At Mehi, the excavation by Stein brought to light a cremation ground along with remains of charred human bones, wood, miniature pots, etc. The evidence also indicates that the ground was in continuous use for cremation purposes. Even otherwise, the

presence of charred human bones along with ashes and charcoal from sites like Harappa and Mohenjo-daro clearly attests the practice of cremation as one of the modes of disposal of dead along with the large number of burials unearthed. The evidence from Kalibangan is quite different in this regard, as there is no evidence of charred human bones from the urns. Thus, these burials may be symbolic burials erected in memory of deceased individuals. The dominant variety among the burial practices is the extended inhumation burials as noticed from several sites like Harappa, Kalibangan, Farmana, Lothal, Rupnagar, Rakhigarhi, Chandigarh, etc. The extended inhumation burials consist of either interment of bodily remains in a grave pit, or interment in a mud coffin or mud-brick constructed coffin or wooden coffin. The evidence of mud-brick coffin is found from Lothal, Harappa and Kalibangan. The Burial 29 from Kalibangan is the most elaborate one in this regard which is discussed in 4.3.5. The evidence of wooden coffins is gleaned from R37 cemetery at Harappa, wherein the excavator also points out remains of wooden lids. Be it a normal burial, or a coffin burial, the other characteristics of the burials are almost same from these sites. The interment of burial pottery is mostly concentrated all along the head portion, to the north and in some cases along the body also. The orientation of the burials of Harappan period is largely north – south, with slight offsets either to the right or left of true North.

The evidence from Rupnagar clearly indicates that interment consisted in two or more stages. Once the burial pit is ready, the lower level might have been prepared for placing the burial pottery in groups, with the possibility of adherence to certain rituals, then the pit is filled partially up to the top level of pottery and the body is placed. The burial remains from Rupnagar are shown Fig. 4.284 and Fig. 4.285, which clearly indicates this procedure, as 4.284 is before removal of skeletal remains and 4.285 is after removal of skeletal remains which brought to light the pottery burial goods at a lower level. The contents of these pottery burial goods are another area of enquiry, which possibly can be pinpointed by lipid analysis as mentioned elsewhere. The literary references of the Vedic period are of some use in understanding the significance of the burial pottery, which has been discussed elaborately under Chapter 4.

The Kachchh area displays different burial customs with sub-variants a noticed at the sites of Dholavira and Surkotada. The employment of limestone

blocks is observed here due to the abundant supply of this raw material. As the bedrock is also not so deep, it has been found that it was excavated and rectangular pits were fashioned for interment of funerary goods. The evidences from Dholavira and Surkotada of the Harappan period are without any skeletal remains with minor exceptions. At Dholavira is found a wide variety of sepulchral remains, which have been discussed extensively under 4.3.3. The prominent among them being the large tumuli constructed of mud bricks, two varieties of which have been excavated. The other varieties consist of limestone slabs oriented vertically as in the case of cist burials; cairn packing over the burials; cairn burials; stone-lined circle, etc. The Surkotada evidence indicates pot, post-cremation and post-exposure burials. The burials are often indicated by placing of horizontal slabs, both in Dholavira and Surkotada. The evidence from the Kachchh area thus indicates a different complex altogether with the availability of new types of burial constructions. The evidence from one of the largest cemetery sites at Farmana is of the extended inhumations found at other sites of this region. The evidence from Rakhigarhi cemetery is also important in this context as the site is one of the five largest in the Indian sub-continent and the partially excavated cemetery agrees well with the other sites in terms of extended inhumations. The fact that the site has a long formative phase also attests to the possibility of more evidences for burial remains, which can be tapped for understanding the evolution and development of burial practices in this part of Harappan domain. The unearthing of three burials from Lothal categorised under the joint burials is also of significance, as the interment of more than one individual in a grave suggests some importance / relation between the persons interred.

In summary, for the mature Harappan period, the burial practices as seen from the excavated sites exhibit a new custom in the form of extended inhumations, which has hitherto unnoticed during the preceding period. Whether a totally new mode of disposal of dead in the form of extended inhumations indicates a different belief system belonging to new population is very difficult to determine. Further, the areas where the extended inhumations are noticed have no burial remains of the early Harappan and formative stages and hence it is difficult to presume the actual practice. Nevertheless, it is also pertinent to notice that the Baluchistan and Sindh areas are devoid of extended inhumations and only consist of flexed inhumations in utero. Thus, if the above two points are taken into consideration, it can be arrived at

that the extended inhumation is a different type of burial custom followed extensively in the modern areas of Punjab, Rajasthan, Haryana.

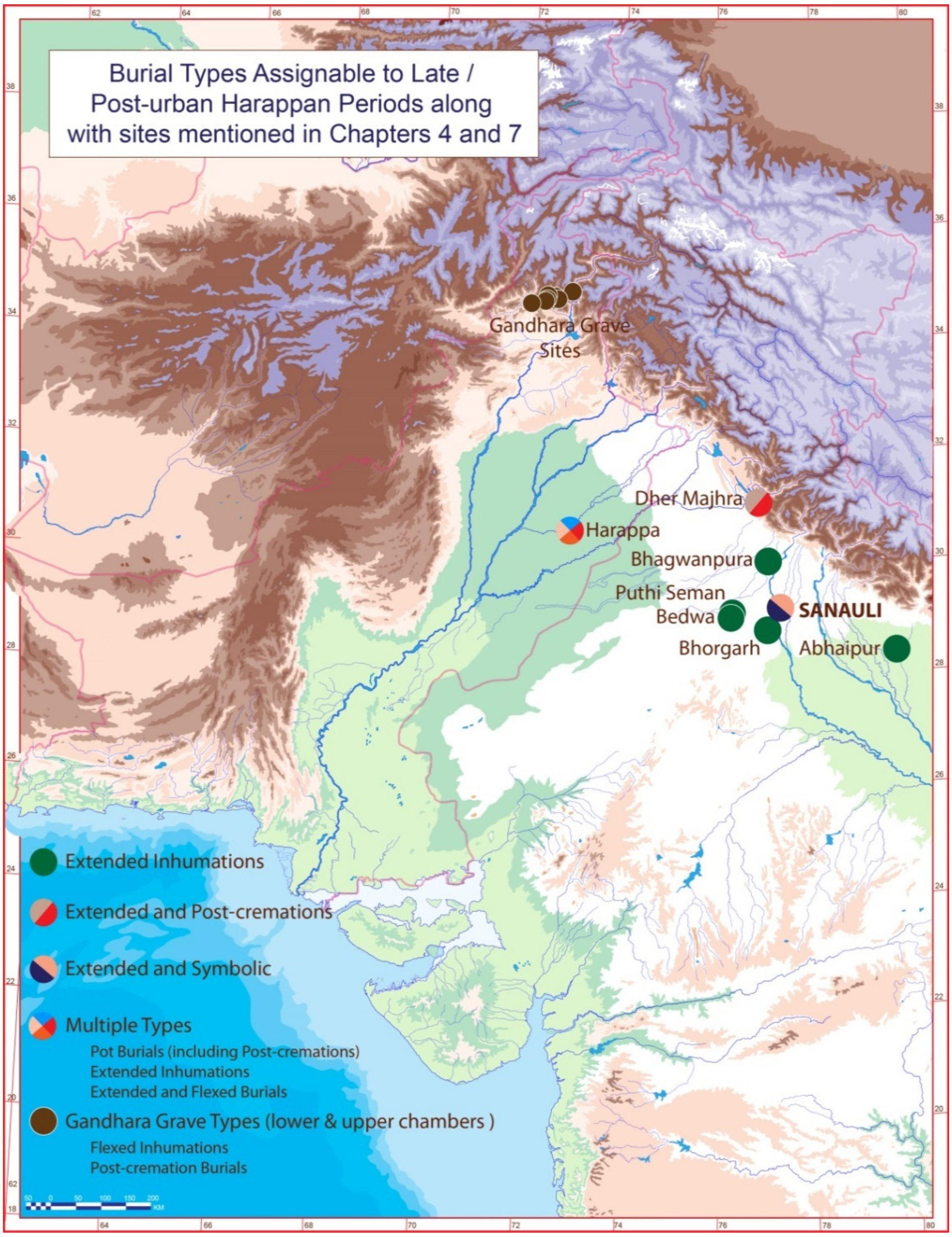


Fig. 7.5: Map showing the burial typologies during the Late / Post-urban Harappan period along with sites mentioned in Chapters 4 and 7

Coming into the late / post-urban Harappan context, very few sites have preserved burial remains. Therefore, the number of sites surveyed to understand the burial practices of this period is only eight along with a host of sites categorised under "Gandhara Grave Culture". Among the eight sites mentioned above, and shown in Fig. 7.5, the evidence from Harappa and Sanauli is important in several aspects. The excavation at Sanauli, which is dealt in detail under Chapter 5, was carried out due to the accidental discovery of archaeological remains in the form of

pottery, artefacts and human bones. However, the remains of habitation site could not be discovered even after extensive survey in the region, as the intensive modern agricultural practices have modified the entire landscape beyond recognition. The presence of late Harappan burial remains were first noticed at Harappa before the R37 cemetery of mature Harappan period was discovered. The late Harappan cemetery is famously known as Cemetery H and consists of urn burials, flexed and extended inhumations. The presence of these three modes of burials is of significance, as it can be observed that the urn burials for interment of post-cremation remains are continuing from the formative stages of the Harappan culture. Together with the extended inhumations, the flexed inhumations also emerge which is an important burial practice during the formative stages of Harappan culture, the earliest in this region is of the Neolithic levels of Mehrgarh. A significantly large number of earth burials from late Harappan levels at Harappa with an east – west orientation is also important considering the fact that it was the prime direction of disposal during the formative stages. Thus, the evidence from Harappa is of extreme significance as it preserves the disposal modes which have a continuity from the past without any discontinuity.

The evidence unearthed from the Sanauli cemetery which is a major portion of this study is another crucial and important one, as the penetration of Harappan culture in the Yamuna – Hindon *doab* can be better understood together with other excavated sites like Hulas, Alamgirpur, etc. The burials at Sanauli are chronologically placed to the first half of second millennium BCE based on the typological analysis of pottery. The evidence also indicates that the cemetery was in continuous use, perhaps for a period of around 500 years, as indicated by at least three levels of burials, remarkable disturbances caused by later period burials cutting into earlier ones, albeit unintentionally. The unintentional disturbances caused to earlier period burials is also an indication of the loss in memory of the exact spot of previous interments and thus indicative of continuous use of cemetery.

The Sanauli evidence is also extremely important, as it has revealed the interaction of the Harappans with the Copper Hoard people, as at least two antennae swords were discovered there. The evidence from Sanauli consists of 116 burial features, numbered by the excavator, which can be reduced as indicated by the

detailed analysis of individual burials under Chapter 5. The burial typology for the Sanauli burials has been discussed under Chapter 5 and broadly speaking only two burial modes are discernible, namely primary extended inhumations and symbolic burials. Based on the nature of the burials, the typology is further extended into five types categorised from A – D with features like (A) primary burials, (B) primary / disturbed burials, (C) symbolic burials, (D) disturbed burials and (E) features containing isolated / scattered pottery. The analysis also indicated that the majority of burials have been disturbed, either in antiquity or due to the recent agricultural activities. The orientation of the burials is northwest – southeast with offsets varying from 30^0 – 85^0 with a mean of 55.21^0 to the left of true North. In some cases, the orientation is almost east – west as noticed from Burial 116, which is a symbolic burial, and a unique specimen of its kind.

Thus out of the 62 burials, wherein the context can be defined to be primary in nature, only 16 have the complete features of an extended inhumations, and 46 have either partially preserved features or indicating its nature as extended inhumations. Out of the 42 skeletal remains available for osteological analysis, the sex determination could not be possible for 18 individuals, 10 are of males, 8 of females and 6 belonging to sub-adult group. The analysis also indicated that the average stature for male ranges from 159 cm to 178 cm and for the female, from 169 cm to 179 cm. The dental pathologies include tartar accumulation, enamel hypoplasia (broadly defined to indicate deviations from a normal enamel in its various degrees of absence), and dental discoloration. Some other different dental morphology is extra cusp-like parastyle, carabelli's cusp (a small additional cusp of upper molars, which is a hereditary feature).

The evidence indicates that the burials were originally embellished with a rich collection of burial pottery, the numbers varying probably as per the social status of the individual interred. The burial pottery consisted of odd number of tall vases elliptical in shape, with or without a distinct base, bowls, small vases, all placed generally near the head to its north, either at the level or below; dish-on-stand normally placed below the hip or thigh portion of the body; bowls-on-stand, cup-on-stand, storage jars, troughs, etc., found either along the side of body. In terms of arrangement of burial pottery, the Sanauli evidence tallies well with the mature Harappan evidence gleaned from other sites, with the significant variation of

placement of dish-on-stand below the hip or thigh portion, which is not noticed from other sites. The burial typology is distinctly late Harappan in nature, with the vases exhibiting the horizontally splayed out rims of the Bara type, dish-on-stands with the typical drooping rim portion of the dish as well as the base. The dish-on-stands have been found in a number of varieties, however, all having the rim of dishes distinctly drooping.

The ornaments and jewellery interred along with the deceased individuals vary, which might again indicate the social standing. The jewellery varies from a rich assortment of gold bangles and necklaces from Burial 95 to solitary occurrences of faience beads. The child burials are generally found associated with eye beads. The eye beads are present in significant number, both of agate as well as faience. It has also been noticed that the faience as a raw materials dominates the entire collection, may be because the technology was mastered during late Harappan times and due to the difficulty in procuring agate raw materials and beads due to breakage of trade networks. Another noteworthy feature is the usage of blue green faience beads, numbering to around 600 in Burial 116 to mark the outline of a human torso. The Sanauli burials also preserves two more such evidence of shaping human torso, one from Burial 106, the outline marked by steatite discs while from Burial 28, a copper container in the form of human torso holds 28 tiny flattened sylised copper objects arranged neatly in rows. The human torso outlined shape is found from three of the four symbolic burials indicating the significance of this form for such burials.

The weaponry found from the burials consist of an antennae sword along with a copper sheath found *in situ* from Burial 15, a copper sheath from Burial 106 and another copper antennae sword from the surface collection. The antennae sword is among the repertoire of Copper Hoards discovered largely in the Ganga – Yamuna *doab*, which is also generally associated with Ochre Colour Pottery. The metallurgical analysis of copper specimen from Sanauli in the future may throw further light on the contacts between these two cultures. The SEM analysis of drill impressions of Sanauli beads indicate a distinct drilling technology, different from the stepped drilling technique employed for long barrel beads of the mature Harappan period. The stepped drilling technique leaves a distinct drill pattern on the interior of the beads, which was carried out by "ernestite" drills. The Sanauli evidence is different from this technique, and there is an evidence of tubular drilling,

most probably done using copper drills. The raw material sources of the agate is also an interesting study, as indicated by the study by Randall Law, which brought to light the chief raw material sources of agate during Harappan culture to Gujarat. It may be true for the Sanauli evidences also, even though the possibility of other sources in the Vindhyan region cannot be ruled out. Thus, it is clear that further analytical studies are needed for better understanding the Sanauli people in the context of the exploitation of raw materials.

The present study is also significant as it is for the first time in Harappan context along with Farmana, the technique of stable isotope analysis was employed in understanding the palaeo-diet and ancient migratory patterns of the Sanauli population. The study was carried out with the active support of Archaeological Survey of India and in collaboration with the Department of Anthropology, University of Florida, USA. The analyses were conducted at the Department of Geological Sciences, University of Florida, USA. The analyses focused on four stable isotopes namely, C, O, Pb and Sr. The analysis of the $\delta^{18}O$ of the first, second and third molars indicate a shift in mean values of $\delta^{18}O$ between the first & second and second & third molars. The mean values of the second and third molars are higher than the first and second molars. This suggests that individuals began to get the bulk of their water from other sources relatively late in the mineralisation process of their second molar enamel closer to 5 or 6 years than for the first molar around its formation during 3 or 4 years. The analysis of $\delta^{13}C$ by molar types show a possibility of a majority of the population at Sanauli not consuming any millets, and a small percentage could have consumed some millets. The plotting of lead (^{206}Pb / ^{204}Pb) against strontium (^{87}Sr / ^{86}Sr) plot by molar type indicate that a possibility of presence of different groups of people at Sanauli coming from different areas. The plotting of Lead against strontium (^{206}Pb / ^{204}Pb against ^{87}Sr / ^{86}Sr) for each individual has also enabled in identifying 'local' and 'non-local' population among the Sanauli dataset. It is also pertinent to keep in mind that that Sanauli analyses in the absence of more regional animal data, a comprehensive interpretation is difficult to make. However, the stable isotope analysis has enabled a new direction in determining the palaeo-diet and migratory patterns in the past. Further refinement and comparing with animal dataset may throw invaluable light on the population at Sanauli.

The evidence from post-urban sites like Bhagwanpura, Puthi Seman, Bedwa, Abhaipur indicate an extended inhumation type of burials, while at Dher Majra, post-cremation urn types are also reported along with the former ones. The Swat Valley sites present a totally different picture on the burial practices starting from second millennium BCE. These burials surprisingly flexed inhumations and post-cremation interments in cist type, urn, box urns burials. The position of the skeletal remains are in in the fetal position and the practice of post-cremation urns again is an indicator of continuity, which is also noticed during the late Harappan period from Harappa. The similarity and continuity is striking even though the new forms of burial architecture are introduced during this period. To sum up, the evidences from the late / post-urban Harappan period show clear continuities from mature Harappan period in terms of burial practices. This may also indicate continuities of socio-cultural beliefs of the population and not any major change, except in the burial architecture of Swat Valley sites.

The literary evidences vis-à-vis the archaeological findings have been probed in Chapter 6. The views of several scholars like Datta, Vats, Kane and Bisht have been compiled under this chapter, which together point to a clear correlation of burial types noticed from archaeological findings with the literary references. Thus, the various modes of disposal of dead mentioned in early and later Vedic literature can be correlated with archaeological evidences. The reference from *Atharva Veda* regarding the placement of various burial offerings in pottery vessels is also interesting as the burials are invariably accompanied with a variety of burial pottery. The inference, which has been received from the literature, can also be correlated if lipid analyses of pottery samples are done, which is again a scope for future study.

7.2 Summary and Conclusion

A large timespan of nearly five millennia from 6th – 1st millennium BCE has been reviewed here in order to understand the burial practices of Harappans in general and the peoples of Sanauli in particular. Under this study, the formative, mature and degenerative phases of the Harappans were included to illuminate about the mode, nature and allied characteristics of disposal of dead. It has been observed that from the earliest occurrence of burials in the Neolithic context at Mehrgarh, special significance was attached by the population in securing the deceased

individual from the vagaries of nature and animals. It was due to this care and affection, the deceased individuals were placed in deep pits, often secured by placing a protective wall or barrier to secure them. Burial goods in the form of pottery, animal remains indicate a belief in afterlife, as sufficient care were placed for providing food to the deceased after their interment in a grave, for him / her to take of themselves with the available resources. The burials often contained personal jewellery, which could have been worn by the deceased individual, which was valued by the survivors, and hence even though valuable in nature, the artefacts were buried along the bodily remains. These specimen of burial pottery, personal jewellery indicate the social status of the interred individual, and thus we observe variations in the burial architecture as well as funerary goods.

The available evidence indicates a predominance of interments in individuals in a flexed position resembling a foetus during the earliest period onwards and all along the formative stages and also during the late Harappan period. The position changes once we reach the mature Harappan period when the extended inhumation predominates. However, along with extended inhumations, other types of practices like post-cremation urns, pot / urn burials, a variety of new burial architecture from Kachchh area, etc., are also noticed. Often two or more burial modes are found coexisting with one another, clearly pointing differences in customs and beliefs, even though the same cemetery area was used. The arrangement of burial pottery during the mature Harappan period becomes standardised and burial after burial followed the same pattern. This is equally true in the case of the Sanauli burials also which culturally and chronologically belong to the late / post-urban Harappan period and a clear continuity from earlier periods. The unique feature of the Sanauli burials is the symbolic burials, wherein the human torso is outlined with either beads or copper, representing deceased individuals whose bodily remains could not be retrieved.

This study indicates that during the Harappan and late Harappan periods, the main modes of disposal of dead were extended inhumations, pot / urn burials, post-cremation urns, symbolic burials, flexed inhumations, etc. These burial forms also tally with the earliest references from the early Vedic literature, which is traditionally dated to mid second millennium BCE. The study also indicates a continuity of burials traditions and practices, in terms of typology, burial

architecture, except some variations in the orientation between the formative and mature Harappan stages. The evidence from Sanauli also corroborates the evidence from other Harappan sites in terms of burial typology, interment, architecture. This study has also enhanced our understanding of Sanauli in terms of cross-cultural contacts and long distance acquisition networks during the second millennium BCE.

7.3 Scope for Further Studies

The present study has opened to open new avenues of research and understanding of ancient material culture in a holistic manner. The following studies are envisaged as an outcome of the present one, which will further increase our understanding of Sanauli:

(i) The study of burial practices has enhanced our understanding of the formative, mature and late Harappan periods only. The study method can be elaborated and extended to other contemporary and later period sites in an extensive manner along with scientific studies in order to increase our understand of cross-cultural connections and interactions.

(ii) The Iron Age burials of the Iron Age comprising the “Gandhara Graves” and the “Megalithic Tradition” are also important during the post-urban and degenerative phase of Harappans, as they did not exist in isolation in their respective regions. Further studies may be required to elaborate and extend the analytical studies of these traditions and to determine the continuity / connections, if any, from the Harappan tradition.

(iii) Scientific and analytical studies of raw materials like agate, basalt, limestone, steatite, faience, etc., need to take place in order to understand their provenience. These types of studies have good scope as demonstrated by Law, who has documented a wide range of raw material sources in the context of Harappa.

(iv) The potential of stable isotope analysis in the reconstruction of palaeo-diet and movement patterns of past populations is enormous in the Harappan and late Harappan context. In this regard, a beginning has been made using the samples of Sanauli, the results of which have indicated that further regional animal samples are required for having a comprehensive and holistic interpretation. Therefore, it is required that a regional dataset for animal samples is to be built up for all the regions of the Harappan domain, so that the ancient samples can be compared and results interpreted.

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